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VOLUME CIV, NUMBER 804

MARCH 1944

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**CRITICAL WARTIME YEARS**

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# Journal of the American Veterinary Medical Association

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VOL. CIV

MARCH 1944

NO. 804

## War and Postwar Disease Control Problems

HARRY W. SCHOENING, V.M.D.

Washington, D. C.

WITHIN the time that has elapsed since our last meeting, tremendous changes have occurred in world affairs. Those affecting the food situation, on both a national and global scale, are of particular concern to veterinarians. Maximum production and conservation of food in the United States are of paramount importance. Since it appears that production of all classes of livestock, including poultry, is now about at its peak, the most feasible remaining means of increasing production is by reducing losses from disease and other causes. This is a war problem—a present problem—and can be considered also a postwar problem for it is unlikely that the devastated countries of the world can get back into normal livestock production within at least several years after the war.

A situation of this kind places grave responsibility on the veterinary profession of the United States—more, I believe, than it has ever had before. But, I am confident that the resources of veterinary science outweigh the dangers from livestock diseases—dangers of which we are, of course, well aware.

Wartime responsibilities are no new experience to our profession. Broadly speaking, veterinarians have always been warriors—against disease and parasites, ignorance and prejudice, pestilence and famine. And not only has this profession waged winning campaigns, but it has forged most

of the weapons with which it has fought. Through research, veterinarians have designed the equipment they needed. Field experimentation was their proving ground. And when all was in readiness, they launched great campaigns against such familiar foes as tick fever and tuberculosis. So it is with confidence that I approach the disease control problems of today and tomorrow.

Foremost among them, as I scan the field of operations, is the highly realistic task of preventing serious outbreaks of disease among the vast numbers of animals now on farms and ranches in the United States. This responsibility, long existent in times of peace, is now intensified by the much greater concentration of animal life. More than that, an epizootic that normally would be felt as merely an economic loss, now—if allowed to occur—would cause a serious breach in the food front.

### POULTRY CONSERVATION PROGRAM SETS PACE

The solution to this problem, of course, consists in eternal watchfulness, special care in making diagnoses, the liberal use of pure and potent biologics, dipping and disinfecting as needed, and prompt reports to state and federal authorities when a local problem threatens to get out of hand.

I need not elaborate further on those familiar points. But besides preventing serious outbreaks—that is, holding the line so to speak—we have the opportunity to make gains, particularly in the reduction of losses from disease and poor management practices. This would not only result in

Presented at the eightieth annual meeting of the American Veterinary Medical Association, Aug. 25-26, 1943, St. Louis.

Chief, Animal Disease Station and Pathological Division, Bureau of Animal Industry, United States Department of Agriculture, Beltsville, Md.

an increase of meat and meat and dairy products but would conserve feed, which is largely wasted when animals die or are unthrifty.

Initiated by the BAI, a splendid start has been made toward such conservation by the poultry industry, which in recent months has crystallized its knowledge and recommendations in the form of a poultry conservation program.

Dr. Cliff Carpenter will have more to say on this subject, so I will refer to it only briefly. It has been my privilege to participate in several conferences with Dr. Carpenter and others who are sponsoring that Program in collaboration with the United States Bureau of Animal Industry. It consists of recommendations, most of them seasonal, involving specific things that poultrymen can do to increase production and decrease losses. There are recommendations on selection, breeding, feeding, management, and of course on control of diseases and parasites. Several problems such as the prevention of cannibalism receive appropriate attention. But throughout there is good balance. The main essentials get the most emphasis. To use an insurance term, the program has "broad-coverage," and that is the kind of coverage our food resources need in wartime.

#### MORE PORK—LESS WASTE

In my judgment, similar programs to cover the production and conservation of other species of animals would be highly desirable. The need for one on swine production is probably most pressing. Veterinary science has already contributed means of controlling hog cholera, swine parasites, tuberculosis, swine erysipelas, and other sources of loss to producers. The swine sanitation system is, perhaps, the most comprehensive of any single one yet advanced, but it is incomplete in a number of respects as a general swine-growing program. There is need to fit together and combine the partial programs we now have so as to cover all the essential points of modern hog production from the breeding of the animals to the marketing of the finished product. Such a plan would include nutritional diseases and shipping losses, as well as the common infectious maladies—all with the view of putting more pork products on the market. It is rather a sad commentary on advanced scientific knowl-

edge that only about six pigs out of every ten farrowed reach the killing floor, at least half of those, when slaughtered bear bruises and other injuries that in aggregate cause a good deal of meat trimmed away.

In March of this year (1943), there appeared in the JOURNAL the recommendations of the Special Committee on Diseases of Swine, designed to improve the wartime food supply. It is a thoroughgoing analysis of the situation and includes suggestions on breeding, feeding, management and reduction of death losses. This excellent report might well serve as the basis for a national swine conservation program. Similarly, the June (1943) number of the JOURNAL contains recommendations of the Association's Special Committee on Diseases of Dairy Cattle, to meet wartime needs in the dairy field. A further progressive step in conserving livestock and animal products has already been taken by a group of extension workers and the National Committee on Boys and Girls Club Work. They have issued large editions of eight different posters, chiefly on animal disease subjects. The director of this activity is Dr. Fred H. Leinbach, formerly head of the Animal Husbandry Department of the University of Maryland, who now has his offices in Chicago at Boys and Girls Club Work headquarters.

#### PROMPT ACTION ON DISEASE OUTBREAKS

Programs for beef cattle, sheep, and horses are logical, subsequent developments after the needs of poultry, swine, and dairy cattle have been met. I offer the proposals in principle rather than attempt at this time to give details. In brief, programs of the kind proposed would give form and substance to many of the general recommendations that in the past have not had so wide acceptance as their soundness and intrinsic worth have merited.

As to their conduct, experience gained in the present one with poultry should be beneficial. Under wartime conditions, where manpower is scarce and travel is difficult, the press and radio are valuable allies. At this point that we can scarcely overemphasize the need to encourage farmers and veterinarians alike to observe livestock closely and report promptly. That, together with a knowledge of diseases and their symptoms, should prevent dangerous infections from making

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headway before they are recognized. Surprising as it may seem, the Bureau has information that during one of the later outbreaks of foot-and-mouth disease, a veterinarian of good professional standing failed to recognize and report the disease until ten days after he had treated animals affected with it. During a critical wartime food situation such as that now existing, we can ill afford to let disease dangers grow before attacking them promptly with all the power at our disposal. Although enlisting the support of the press, radio, and similar information aids, there is need also for organized groups directed by or including veterinarians, to spearhead the programs. Manpower is a serious problem, it is true, but the power available can be made more effective by good organization. Many branches of the livestock, meat, dairy, and poultry industries, already well organized, have a direct interest in animal health and would doubtless give valuable assistance.

#### COORDINATED RESEARCH GOOD STRATEGY

As a further element in the conservation of livestock health, there is still a definite need for research on many of our problems. This should be pursued as vigorously as possible under present circumstances. Greater coordination of research merits attention. In recent years, a marked trend toward a concentration of research effort has been evident, especially on problems involving defense and war needs. This is good scientific strategy. A vigorous attack from several sides, simultaneously, is more likely to succeed than an approach from only one direction.

A wartime disease-control program also must provide for meeting the threats of exotic diseases. Most of you are familiar with the principal foreign plagues, at least by name and reputation. They are extremely dangerous enemies and would cause a tremendous amount of trouble should they break through our quarantine safeguards and make their appearance among our livestock. Foot-and-mouth disease, rinderpest, surra, contagious pleuropneumonia, and other diseases are in this category.

#### "IT CAN HAPPEN HERE"

From a livestock sanitary viewpoint, the dangers become greater as shipping and airplane travel increase. Our contacts with foreign countries are now matters of hours

only. The possibility of the introduction of diseases is, therefore, much greater today than in the past and will doubtless be still greater in the postwar days. The hazard to both human and animal health through the importation of diseases by insects in airplanes and by other means will be greatly increased. It is necessary, therefore, for the veterinary profession, which is the guardian of the livestock industry, to become well acquainted with these exotic diseases and report them immediately to the proper authorities. Only when this is done can measures for control and eradication be instituted early and the diseases suppressed promptly at minimum expense. To meet his responsibilities fully, I emphasize that the veterinarian of today and of the future must acquaint himself with these diseases. He cannot be content, as in the past, with dismissing them with the statement that they do not exist in this country. On the contrary, he should have in mind that "it can happen here."

As a further aid to meeting the situation, veterinary colleges may appropriately devote more attention to descriptions of exotic diseases, their diagnosis and control. Likewise, state sanitary authorities should give renewed thought to the suppression of diseases within their states and particularly to methods of procedure in combatting possible foreign plagues. The methods should include a vigilant lookout for such diseases. There needs to be maintained, of course, the closest cooperation between livestock owners, the federal government, state livestock sanitary authorities, and the veterinary profession at large, in considering this problem. Many veterinarians are now in the armed forces throughout the world. These men will have an opportunity to see new and strange diseases and to become familiar with them. Other veterinarians in different capacities will also have opportunities to study conditions in foreign countries.

On their return, all this knowledge and experience will be of benefit to the profession here. It will result in having a veterinary personnel which is familiar at first hand with many of the foreign maladies that in the past were known to most of our veterinarians only through textbooks. These men should be in position to give expert advice and assistance in meeting situations resulting from the introduction of foreign



diseases. It will be necessary in the future, with the increase in such hazards, to pay more attention to this phase of veterinary medicine.

While doing so I feel we may wisely acquaint the general public more fully with the numerous contributions of veterinary science to human welfare. A few branches, largely research and meat inspection, have received some moderate attention, but the public would undoubtedly be interested in knowing how the security of animal production and meat supplies is protected, for instance, by livestock inspection and quarantine services. Another topic of probable interest to the public is the relationship between the diseases and parasites of man and those that affect animals.

#### HEALTHY LIVESTOCK FOR EXPORTATION

An early postwar step will be a rehabilitation of the livestock industry of devastated countries. Much of the foundation stock for these countries may be expected to come from the United States or other countries similarly situated. It is reasonable to expect that disease-control programs may be instituted in these countries simultaneously with the introduction of new stock, based perhaps on some of our own successful eradication programs, such as those against tick fever, tuberculosis, and Bang's disease. In order that we may be in position to supply healthy stock to these countries, it is necessary that we keep our livestock healthy and that our programs now in effect continue to go forward. It would be regrettable for any false sense of security to permit loss of the gains we have made by our arduous endeavors in the past. I have especially in mind need for the continued retesting of herds for tuberculosis and brucellosis.

#### MAINTAINING VETERINARY PERSONNEL

In any planned disease-control program, it is essential that sufficient competent veterinary service be available. Just what the numerical requirements will be for veterinarians during the postwar period will depend on developments that can not be analyzed with accuracy now. However, those responsible for veterinary education in this country should give careful study to this problem, the importance of which is recognized by this Association in making it a topic for separate discussion.

Plans for postwar veterinary functions should logically include the participation of the United States in a well-organized international exchange of information. So, as I have been able to learn, the International Office of Epizootics, in Paris is longer functioning, certainly not as a service to the democracies. During the decade that ended in 1937, that office issued a valuable series of publications, largely of statistical and research character. The United States has not been among the nations participating in the work of the International Office of Epizootics, but the monthly bulletin of that office nevertheless has devoted space liberally to the progress of veterinary work in this country. So 45 countries, including Great Britain, the Soviet Union, Argentina, and Australia, name just a few of those prominent in livestock production, were participants. I believe that it would be advantageous for the United States to be represented in the future affairs of that body, if restored active status, or in a similar organization that may be established.

In offering these views, I am fully aware that other professional groups are likewise interested in postwar planning. Necessarily there are many economic, political, and diplomatic points of view, as well. But the knowledge should not deter us from gathering and discussing all available data and making at least tentative plans, based on the best judgment of the veterinary profession.

We may expect difficulties in meeting some of the new situations that are almost certain to arise, but I am confident that the veterinary profession in this country will be equal to the occasion. On this point, a statement that is typically American recently came to my attention. I quote: "The difficult things are done immediately; the impossible things take a little longer." This spirit explains why the United States is the safest country in the world for the production of livestock. Let us keep it

You can't laugh off the fact that the young generation of Germany has been taught the art of fiendish brutality as the means to its ends nor that Norway, France and the Balkan States have their quislings. For the counter attack, buy a War Bond.



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## Make Them "Fighting" Sheep

I. B. BOUGHTON<sup>1</sup>, D.V.M., O. C. CUNNINGHAM<sup>2</sup>, B.S., F. S. HULTZ<sup>3</sup>, Ph.D.,  
F. H. LEINBACH<sup>4</sup>, Ph.D., and R. F. MILLER<sup>5</sup>, M.S.

*Reproduced below is the subject matter of the first of a series of programs developed by The Inter-Association Council on Animal Disease and Production. Its purpose is to stimulate more efficient production of meat and wool to meet war needs. Other programs relating to beef cattle, dairy cattle, swine, poultry, and horses and mules are in preparation. Although designed primarily for the information of farmers and flock owners, the JOURNAL publishes this material as an aid in disseminating authentic information pertinent to livestock conservation.*

*The authors of this article are recognized authorities in their respective fields of veterinary and animal science and have condensed a large volume of material into a concise summary of the major problems encountered in sheep production.*

A "birth-to-market" program that saves the lambs and keeps the flock well fed, fast growing, and free from disease is the only system of management that will make them profitable and "fighting" sheep. Good breeding, good feeding, and successful disease control are essential in such a program.

To aid farmers as they produce meat and milk for our "food war," a sheep management program has been prepared by nationally recognized sheep specialists. Here are their suggestions for more efficient use of sheep in the production of meat and wool.

### FOR FARM FLOCKS

1) Green succulent pasture during the summer season is necessary for good condition and economical wintering of breeding ewes.

2) Ewes in good condition winter well on legume hay, or legume hay and silage alone. Ewes in poor condition need grain and some concentrate—enough to improve their condition by lambing time.

3) Starting four to six weeks before

Prepared under the auspices of The Inter-Association Council on Animal Disease and Production, which consists of one representative each from the American Veterinary Medical Association, the American Dairy Science Association, the American Society of Animal Production, the Poultry Science Association, and the U. S. Live Stock Sanitary Association.

<sup>1</sup>Texas Agricultural Experiment Station, Sonora substation. <sup>2</sup>Department of Dairy Husbandry, New Mexico Agricultural Experiment Station. <sup>3</sup>Department of Animal Production, University of Wyoming. <sup>4</sup>Department of Animal Husbandry, University of Maryland. <sup>5</sup>Division of Animal Husbandry, University of California.

lambing time, these rations are suitable for feeding ewes:

- a) All the legume hay the sheep will eat.
- b) 3.3 lb. legume hay, 1 lb. grain—either corn or oats, or a combination of the two.
- c) 5 lb. silage, 1.3 lb. legume hay, 0.7 lb. grain, 0.3 lb. protein supplement, and 0.04 lb. limestone (based on 150-lb. ewe).

4) Yearling pregnant ewes need more feed than older ewes. Segregate them and feed more liberally.

5) Exercise for the breeding ewe is desirable, if not essential, even with the best of rations.

6) Dry, well-ventilated quarters; wide doors with sills low to the ground, and ample trough and feed-rack space help reduce injuries to ewes far advanced in pregnancy.

*Before and After Lambing.*—1) For indoor lambing, pens are necessary. Minimum size for the pens is 4 by 4 feet. Larger ones are better.

2) Ewes should be penned about a day before the lambs are born. Two or three days after lambing the ewe and lamb should be turned into a larger pen with other ewes and lambs. All ewes should be "tagged" and wool clipped off the udder a month or six weeks before lambing. Feed only roughage. If the ewe is constipated, give 3 ounces of castor oil.

3) No sooner than three days after lambing, start feeding small amounts of grain. Increase this gradually to approximately 1 lb. daily, in addition to roughage, after the second week.

*Fattening Native Lambs.*—1) Early-dropped lambs are often more profitable

when marketed before pasture season begins in some parts of the country. To speed up gains, creep feed the lambs twice a day. A grain mixture of 50 lb. of cracked corn, 30 lb. of coarsely ground or crimped barley, and 20 lb. of coarsely ground or crimped oats gives good results; or use any combination of grains which lambs relish. Also have a rack of leafy legume hay in the creep.

2) Late-dropped lambs make good gains on good pasture. Wean when  $3\frac{1}{2}$  to 4 months old. These lambs can be marketed from grass, or if still too small, marketed after a short feeding period. Rotate pastures frequently for the ewes and lambs.

3) Lambs on drylot need a ration higher in grain than breeding stock. Bring lambs to full feed (1.25 to 2 lb. daily per lamb, depending on size) gradually. Legume hay, with or without silage, is a good roughage ration. Limit silage to 1.5 to 2 lb. daily. Faster gains are possible with the addition of 0.10 to 0.25 lb. of protein supplement daily per lamb; economy depends on the price of lambs and price of supplement.

#### FOR RANGE FLOCKS

*Selection of Ewes.*—1) Choose uniform yearling ewes of good size with straight backs; deep, strong heart girths; well-developed hindquarters; and good legs and feet.

2) The fleece should be dense with long staple, uniform in length, covering all parts of the body and free of black fibres.

3) Flocking instinct (inherited from Merino breeding) is essential.

*Selection of Rams.*—1) Alertness, masculine head, sound mouth and possession of both testicles are essential. Avoid defects such as open shoulders, crooked legs, weak pasterns, low backs and shallow heart girth.

2) In the good feed areas crossbreeding with a mutton-type sire such as Hampshire or Suffolk is most profitable. In the less favorable sections the use of wool-type rams, such as Rambouillet or Corriedale, is preferable.

*The Breeding Flock.*—1) Cull the ewes and use healthy, well-grown rams free from defects.

2) Have ewes in good condition.

3) Use a sufficient number of active bucks, at least one to every 30 or 40 ewes.

4) Breed so that lambs will be born in mild weather.

*Winter Feeding on Range.*—1) W. short or snow-covered pastures, feed supplementary feed. Alfalfa hay is best for sheep.

2) Ewes should be 10 to 20 lb. heavier at lambing than at breeding. Well-fed ewes usually have a larger lamb crop.

*Lambing.*—1) Open range lambing is common and dependent on mild weather. Provide shelter where possible. Supervise lambing closely. Have experienced help. Make certain the ewe accepts her lamb and that the lamb nurses promptly. Milk of swollen udders.

2) Feed hay only to the ewes for two or three days after lambing. Bright alfalfa hay is best. Later, add grain (shelled corn or whole barley or cottonseed cake) gradually. When pasture becomes available, little additional feed is necessary.

3) Be sure each ewe raises a lamb. Transfer twin lambs to ewes that have lost the lambs.

#### FEEDING WESTERN LAMBS FOR MARKET

1) Sorting feeders into groups of large, medium, and small lambs gives more uniform gains and fewer runts. Fresh water in clean troughs, and free access to salt must be provided for satisfactory gain. Provide clean, comfortable quarters with ample bedding.

2) Feed all the roughage lambs will consume. Bring the lambs on feed gradually by starting the grain ration at 0.25 lb. per head daily, increasing it to 0.50 lb. in about three days and gradually to about 1 lb. in about thirty days.

3) After thirty days on full feed, lambs will eat about 1.25 to 1.50 lb. of grain and 2 lb. of hay per day. With wet beet pulp or silage, limit roughage to about 1 lb. per day. Adjust feeds to their availability and price. Reducing the grain allowance and increasing roughage will lengthen feeding period, but this is sometimes more economical.

4) The careful feeder who keeps a "close watch" on his lambs is the successful feeder.

#### PREVENT DEATH LOSSES

1) Remember that "an ounce of prevention is worth a pound of cure."

2) Do not overstock.

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3) Do not graze sheep on marshy or swampy areas if they cannot be drained.

4) In range lambing take advantage of natural shelter—trees, brush, canyons, etc.

5) Maintain a good program of sanitation. If lambing is done in barns with dirt floors, replace dirt floors with clean dirt or gravel; scrape and scrub (with boiling water) wooden and concrete floors. Provide plentiful clean bedding and change it when dirty.

6) Dock and castrate lambs when young (2 or 3 weeks old). Maintain sanitary conditions. Turn lambs out to pasture immediately after docking.

7) Disinfect shears before shearing. Paint wounds with a good antiseptic. (Your veterinarian can advise you.)

8) In farm flocks, paint the fresh navel stump with tincture of iodine.

9) Rotate pastures to minimize parasitic infestations.

10) Consult your veterinarian regarding your flock's health.

**Communicable Diseases.**—1) In regions of prevalence, use proved immunizing agents.

2) Consider all udder inflammations as communicable until proved otherwise.

3) Segregate all suspected sick animals; move the healthy ones to new pastures. Disinfect premises when practicable.

**Common Diseases.**—1) Minimize occurrence of such diseases by good feeding and management practices. This helps to prevent losses.

2) If an outbreak occurs, check the ration, move well animals to new pasture and treat the sick animals.

3) Founder, constipation and allied troubles are usually due to too much concentrate. Prevent bloating by feeding some hay before turning on pastures. *Never give mouldy feed to sheep.*

4) Add molasses to ration or offer it free choice during the last month of pregnancy and be sure that ewes get daily exercise during this month.

5) Eradicate poisonous plants, if practicable, or avoid pasturing areas containing them.

**Parasites.**—1) Stomach worms: In badly infested regions, treat all sheep in May or early June. Repeat at about thirty-day intervals or as needed throughout the danger

(warm) season. Fewer treatments are necessary in lightly infested areas. Always put treated animals on "rested" pastures.

Phenothiazine is the drug of choice. Use it as a drench, bolus, or mixed with the feed. The phenothiazine-salt mixture, one part phenothiazine to nine parts salt, offered as a lick free choice shows good possibilities in the control of stomach and intestinal round worms. This lick should be preceded by individual treatment. Copper sulfate-nicotine sulfate drench and tetrachlorethylene are effective but not as good as phenothiazine.

2) Nodular worms: Treat every six to eight weeks in warm weather. Treat also in December, January, and just before turning out in the spring. Phenothiazine is the only drug which is efficient against nodular worms.

3) Lung worms: Move the sheep to well-drained pasture or drylot. Treat for stomach and intestinal parasites and feed well.

4) The broad white tapeworm and the fringed tapeworm: Use copper sulfate nicotinic sulfate drenches.

5) Liver flukes: Treat the sheep with carbon tetrachloride in late summer and repeat in the early fall. Destroy the intermediate snail-host by using copper sulfate on ponds, streams and swampy areas; this is the best preventive measure.

6) Coccidiosis: Control by strict sanitation and isolation of infested animals.

7) Scabies: Scabies-infested animals are subject to quarantine. Report immediately to your veterinarian. All animals must be dipped in lime sulfur at ten-day intervals until cured.

8) Ticks: Dip the flock in wettable sulfur-rotenone suspensions.

9) Screwworms: Use Smear Formula 62 (as given below) every third or fourth day on all infested wounds:

Diphenylamine (technical grade)	3½ parts by weight
Benzol (commercial)	3½ parts by weight
Turkey red oil (pH-10 or neutral)	1 part by weight
Lamp black	2 parts by weight

10) Consult your veterinarian for formulas and methods of treatment.

You can get a priority on the delivery of anthracite coal if you operate a brooder or hatchery.



## Acute Coccidiomycosis in a Mountain Gorilla (*Gorilla Beringeri*) with Anatomical Notes

FRANK D. MCKENNEY, D.V.M., J. TRAUM, D.V.M. and AILEEN E. BONESTELL, B.S., M.A.  
San Diego, California

THE FIRST report of coccidioidal granuloma infection in species other than man was published by Giltner in 1918.<sup>1</sup> He found the infection in the bronchial and mediastinal lymph glands from cattle slaughtered in a San Diego abattoir. Microscopic examination revealed the presence of double-contoured bodies, and cultural studies produced growth typical of *Coccidioides immitis*. He was able to transmit the disease experimentally to guinea pigs,



Fig. 1—Adult male mountain gorilla, M'Bongo, photographed June 1, 1940, when the animal had obtained a weight of approximately 600 pounds.

rabbits, dogs, cattle, sheep, and swine. Since Giltner's work, this disease has also been reported by Beck<sup>2</sup>, who found 6 cases in cattle and 1 in sheep; Traum<sup>3</sup>, who found 2 cases in cattle; Beck, Traum, and Harrington<sup>4</sup>, who reported 10 new cases in cattle. The last named authors observed the infection in eight counties in California,

Formerly, Veterinarian, Biological Research Institute, Zoological Society of San Diego. (Frank D. McKenney); Division of Veterinary Science, University of California, Berkeley (J. Traum and Aileen E. Bonestell).

Grateful acknowledgment is made to Dr. Howard A. Ball for his assistance in the postmortem examination and a study of the histopathology.

including San Diego. Stiles and Davis<sup>5</sup> have reported the further finding of coccidioidal granuloma in cattle. No record of the disease in wild animals, either in captivity or native state has been noted in the literature.

Since coccidioidal granuloma has been found in epidemic and endemic form in man<sup>6</sup>, it is not surprising to find a marked susceptibility to this disease in anthropoid apes.

Coccidioidal granuloma has been previously observed in primates in the San Diego Zoo, but not reported. A microscopic study of lung tissues from a tropical American monkey (*Cebus hypoleucus*) examined post mortem in 1936 revealed the typical spherules of *C. immitis*. Unfortunately, the data are too insufficient to be included in the present report.

### HISTORY

The affected animal forming the basis of this report was one of a pair of male gorillas placed on exhibition in the San Diego Zoo in 1931. The affected individual (M'Bongo, fig. 1) was estimated to be approximately 4 years of age when acquired by the zoological society. The maximum weight recorded for this animal was 281 kg. on June 1, 1941. His cagemate (N'Gagi) has since attained a weight of 287 kg. Both animals occupied the same cage and their sleeping quarters were in the same building, separated only by an iron grill. The same attendant had cared for the animals for several years and both animals had received the same food and care.

### SYMPTOMS

The initial stage of the disease was typified only by the hesitancy of the gorilla to leave his bed each morning when released into the large outdoor cage. For the first two weeks, the animal was somewhat particular in his choice of food, a symptom noticeable in an individual that had been normally a voracious eater. The animal would remain in his bed longer each



morning and during the second week, apathy was quite definite. The reduction in the amount of food consumed was gradual and, on the twenty-sixth day of illness, the animal refused all food for the first time. On the thirty-second day, its condition had grown progressively worse, and while a satisfactory temperature reading could not be obtained, an axillary temperature of 103 F. was recorded, with a slight increase in rate of respiration. From the appearance of the skin on the face, the animal had some fever.

On the basis of a tentative diagnosis of an infectious process, it was decided that a course of sulfadiazine might be beneficial and attempts were made to administer 5 Gm. of the drug every three hours. It was necessary to give this in the drinking water as the animal would touch no food. On the thirty-third day, he exhibited a slight cough and a purulent exudate at the medial canthus of both eyes. On the following day, however, an axillary temperature of 101 F. was recorded, and the animal accepted small quantities of oranges and grapes. A large amount of exudate remained in both eyes. The animal showed considerable loss of weight and strength, and the coat had become rough in appearance. Although he was able to move from one cage to another within the sleeping quarters while the bed was cleaned and fresh straw added, he showed no desire to leave the sleeping quarters after the twenty-sixth day of illness.

There was little change in symptoms or condition after the thirty-fourth day, except for some improvement in appetite, until the fortieth day, when 7 liters of milk, and 7 egg yolks were being consumed daily. The sulfadiazine had been reduced to 5 Gm. per day. On the forty-first day, symptoms of dyspnea with stertorous breathing developed. There was intermittent hemorrhage from the right nares, and the respiration increased to 43 per minute. On the following morning, inhalations of compound tincture of benzoin were administered in an effort to relieve the dyspnea. There had been no evidence of pain at any time and no evidence of a persistent cough. The animal died on the forty-fifth day.

#### POSTMORTEM

**General Examination.**—The body weighed 264 kg. Chest measurement was 175.3 cm.; waist, 182.9 cm.; reach from fingertip to

fingertip, 247.7 cm.; wrist, 36.5 cm. There was some evidence of irritation and abrasion from urine burns on the outer aspect of both thighs. On removing the skin, considerable subcutaneous fat was present, which measured 5 cm. in thickness over the regions of the breasts and lower abdomen. The external genitalia were small. The penis approximated 10 cm. in length and 1.5 cm. in diameter. Both testes were small, the left having descended farther than the right. There was a generalized enlargement of subcutaneous lymph nodes. The teeth were mature, but showed considerable erosion. The incisor teeth were in malocclusion, the upper cuspids occluded distal to the lower cuspids.

**Abdomen.**—There were numerous adhesions present between the omentum and lower anterior abdominal wall, also between the cecum and lateral abdominal wall. A large amount of fat was present in the gastro-colic omentum and, to a less degree,



Fig. 2—Multiple gross lesions were evident in the spleen.

in the omental apron. This weighed 7.9 kg. The stomach and intestines contained a large amount of yellow liquid resembling partially clotted milk. No ulcers were present. The appendix measured 25.5 cm. in length, and 2 cm. in average diameter. The liver weighed 5 kg. and showed a light yellow surface, indicative of a high fat content. Scattered throughout the parenchyma were about eight soft, white areas, 0.5 cm. in diameter. The spleen (fig. 2) weighed 680 Gm. and was very soft and pulpy. Two lesions, 1 cm. in diameter, and at least 25 smaller lesions were present which resembled soft tubercles. The kidneys were

lobulated and showed deep surface scars but no evidence of generalized parenchymal damage. Kidney size and adrenal size approached closely the human average.

*Thorax.*—The thorax was opened through the diaphragm to preserve the rib cage. The right pleural cavity contained about 1 liter of dirty brownish green fluid. The pleural surface of the diaphragm on this side presented peculiar hemorrhagic excrescences, 1 to 2 cm. in diameter, somewhat resembling granulation tissue. The lower lobe of the right lung presented numerous tubercles of rather large size scattered over the pleural surface. These were remarkably soft in consistency. The central part of the lower lobe had been almost completely destroyed by an irregular abscess cavity surrounded by beefy tissue resembling neoplasm or granulation tissue (fig. 3). The diameter of the abscess cavity averaged

about 10 cm. and the contents were putrid. The upper and middle lobe of the right lung and the entire left lung showed only occasional foci resembling tubercles. There was moderate hypostasis at the left base and pleural adhesions of long standing. The heart weighed 1,134 Gm. but showed no abnormality. The peribronchial glands were greatly enlarged and caseous.

*Head.*—A large pad of very fibrous fat (fig. 4) covered the posterior half of the vertex and parietal portions of the skull. There was pronounced bony proliferation apparently developed from the suture line of the parietal bones where they met the frontal and occipital bones. This furnished attachment for the fat pad described, which extended above the surface of the skull 1 cm. The main support for this pad, however, was provided by a greatly elongated spinous process of one of the upper cervical



Fig. 3—Right lung showing abscess and fibrous as well as multiple tubercle-like nodules.

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vertebrae—possibly second or third. This spinous process was at least 10 cm. longer than the adjacent spinous processes. The crest or accumulation of fat apparently functions as a fat reservoir and attains its maximum size only in well-nourished animals.

The brain was about one-half the size of that of a human adult. The weight was 565 Gm. There was no meningeal thickening or



Fig. 4—Skull and crest showing the attachment and deposition of the fat pad.

distortion of the brain substance. The pituitary was encased in a sella. There was no gross evidence of disease within the cranium.

**Smears.**—Scrapings of the cut testicular surface did not show evidence of sperm.

Smears from the liver and spleen lesions, when stained for acid-fast bacilli, did not reveal their presence.

Wet mounts with potassium hydroxide revealed the presence of numerous fungus bodies, some of which showed sporulation. They were characteristic of *C. immitis*.

Tissue from the lung and spleen was excised for culturing of the causative organism.

#### HISTOPATHOLOGY

**Spleen.**—Numerous irregular areas of necrosis were surrounded by tissue reaction typical of tubercle formation. Only a few giant cells were present. Scattered throughout such areas were moderate numbers of refractile bodies, typical of *Coccidioides* in the stage just prior to expected sporulation. Diffuse infiltration of pus cells was apparent.

**Liver.**—Lesions appeared to be some-

what more chronic in type with more definitely formed tubercles and more numerous giant cells but fewer double-contoured bodies; extensive postmortem change.

**Lung.**—Sections of lung were somewhat similar to liver in the well-defined tissue reaction and tubercle formation (fig. 5). Many of the spherules found were well-developed, sporulating forms (fig. 6). Pus cells were not predominant in this tissue as they were in the spleen. Organisms within the giant cells were frequent.

**Lymph Node.**—Tubercle formation was not so pronounced as in the liver and spleen. Many fields were obscured by large numbers of polymorphonuclear leucocytes and cellular debris.

#### LABORATORY FINDINGS

Several portions of tissue were sent to the Veterinary Science Laboratory of the University of California, Berkeley. On Apr.

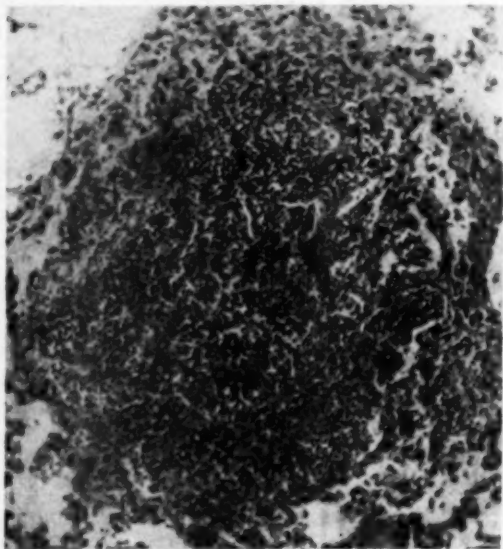


Fig. 5—Section of the lung showing the low-power magnification of tubercle-like lesion.

13, 1942, portions of the spleen and lung which had been frozen in dry ice arrived. During transit, however, thawing had occurred and the tissues were in a greatly softened condition upon arrival at this laboratory.

Examination of this material by means of a hanging drop preparation revealed the presence in both spleen and lung of double-contoured spherules of varying size, typical



of *C. immitis*. These were not especially numerous. After searing the surface of the spleen, cultures were made from the deeper portion of the tissue on 2 per cent glycerine and 1 per cent glucose agar slants and in bouillon. This medium was chosen only because it was readily available but *C. immitis* will grow readily on nearly all nutrient mediums. After three days, all cultures showed a growth typical of *C. immitis*.

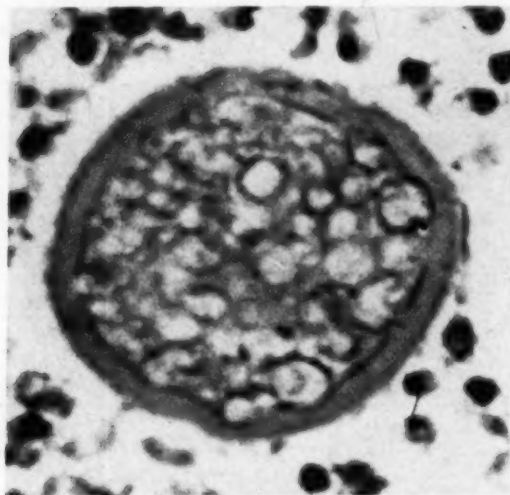


Fig. 6—Section of the lung showing large sporulated spherule

On the same day that the tissues were received, a portion of the spleen and lung was ground in sterile physiological saline and injected intraperitoneally into a female guinea pig. Ten weeks later, the animal was tested intradermally with 0.1 cc. coccidioidin (received from C. E. Smith). Forty-eight hours later, it showed a strong positive skin reaction, with marked reddening and thickening, measuring 18 by 22 mm., with an area 5 by 8 mm. of central necrosis. The control guinea pig was negative to the test.

Two days after testing, the guinea pig was chloroformed and, upon autopsy, presented coccidioidal granulomatous lesions. The spleen showed two firm, well-encapsulated 3 mm. nodules, containing cream-colored glutinous material. The gastric omentum was extensively involved, measuring 50 by 30 mm., and was filled with soft, cream-colored material which was well encapsu-

lated. The lungs showed slight involvement and contained 7, 1 mm. firm nodules. The liver showed no lesions but several of the mesenteric lymph glands were involved. Hanging drop preparations from the spleen and omentum revealed double-contoured bodies typical of *C. immitis*, although these were not numerous. After five days, cultures from the omentum and spleen showed the fungoid growth characteristic of *C. immitis*.

#### COMMENT

The source of the infection in this case is, of course, highly conjectural. Since the disease has been reported in both animals and man, in San Diego County, there is reason to believe that soil or vegetation covered with soil and containing the endospores of the fungus could have reached the bedding. As it had been the practice for several years to use oat hay as bedding for the animals, it is presumed that the infective organism may have come from that source. The origin of all oat hay used for such purposes for several months previous to the occurrence of the disease was in the immediate vicinity of San Diego. The attendant had frequently noticed pieces of earth mixed with the bales of hay and both animals had the habit of picking up the bedding in their hands and letting it fall over their heads and shoulders. It is possible that the endospores were inhaled with dust particles from the hay. The large outdoor cage had a cement floor covered with sand obtained from the local beaches which was changed every month to six weeks depending upon its condition. Whether or not beach sand may harbor the endospores of this fungus is not yet known.

It is worthy of note in this case that, although the animal was not less than 15 years of age, from indications observed in the skeleton, it had not reached maturity. Consequently, one might expect that the life span in the gorilla does not differ greatly from that in the human. It was not surprising to find that the animal was sexually immature as no male gorilla in captivity has been known to become sexually mature.

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# Veterinary Problems in a Signal Pigeon Company

LIEUT. ARNOLD S. ROSENWALD, V.C., U.S.A.

Shreveport, Louisiana

RAPID PROGRESS has been made in the field of fowl diseases in the last two decades, but the diseases of some species are still little understood. Pigeons are one of the species in that category. Because of their use by the Army for message work, the diseases of pigeons have recently assumed more importance.

This paper discusses some of the disease problems in a Signal Pigeon Company and suggests possible methods of control.

A veterinary officer working with pigeons is confronted with two major problems. First, there is very little factual information regarding these birds, their needs, their nutritional requirements, and the diseases affecting them. Most treatises on pigeons discuss disease, but the information is based on fable, uncontrolled experiments, or long, and possibly erroneous, practice. Many of the authors are not sufficiently versed in veterinary medicine to discuss diseases. Levi<sup>1</sup> contributed a voluminous bibliography, while Beaudette;<sup>2</sup> Gauger, Greaves, and Cook;<sup>3</sup> Meyer;<sup>4, 5</sup> and Hinshaw and McNeil<sup>6</sup> have contributed excellent papers. Accurate information is so sparse that a veterinarian in a tactical unit is not able to base his recommendations on proved work. The need for this information is pressing.

Second, many pigeoneers have preconceived and often erroneous ideas regarding pigeon diseases. The causes of various ailments are not understood. Cause and effect are often confused and little understanding of the principles of disease con-

trol or of epizootiology exist. Much emphasis is placed on the proper handling of the pigeons to avoid injury or feather damage, yet diseases which destroy more than 10 per cent of the birds may be lightly dismissed as natural or due to bad weather or overwork. An educational program is therefore needed.

In a theatre of operations, investigation of disease problems in the birds of a tactical unit is obviously impracticable. It seemed expedient to obtain as much practical information as possible while in the zone of the interior. The coöperation of the laboratory officer, Station Hospital, Camp Claiborne, Louisiana, made possible the postmortem and bacteriological examination of all birds which died or were destroyed since Dec. 1, 1942. Records of the findings have been kept systematically.

Since Feb. 1, 1943, similar records have been kept of all sick pigeons treated and subsequently released. It is possible to compile a survey from these records showing what diseases have been of prime importance in the birds of this command.

The diagnoses of birds examined *post mortem* since Dec. 1, 1942, are summarized in table 1.

TABLE 1—Diagnoses of Birds Examined Post Mortem Since Dec. 1, 1942, 280th Signal Pigeon Company

DIAGNOSIS	OLD BIRDS		YOUNG BIRDS	TOTAL
Salmonella infections .....	38	157		195
Trichomoniasis .....	1	101		102
Enterohepatitis (Trichomonad) ..	0	24		24
Trauma .....	2	27		29
Omphalitis (Cryptogenetic) ....	0	25		25
Undetermined .....	14	74		88
Miscellaneous .....	12	40		52
Total .....	67	448		515

Period covered by table ended June 30, 1943.

Salmonella infections caused over one-third of the deaths. Some birds developed permanent incapacitating arthritis and had to be killed, some became emaciated and died, while others died suddenly in good flesh. Organisms recovered from all birds

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(Continued from preceding page)

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were identified as *Salmonella typhi-murium* (variety Copenhagen).

Though both flagellar and somatic antigens were used in testing the value of agglutination tests for discovering infected birds, the results suggest that these tests were not as effective as the test used to eliminate pullorum disease from poultry. The tests seemed to have some value as disease-control measures but more detailed investigation is needed. The elimination as breeders of any pigeons with a history indicating paratyphoid infection either in themselves or in the brothers, sisters, or offspring, plus the use of the agglutination tests, with subsequent removal of reactors, should markedly curtail losses from *Salmonella* infections. Many of these losses occurred among trained birds being used for message work, which were incapacitated by arthritis, myositis abscesses, encephalitis, or septicemia.

Trichomoniasis or "canker" was apparently caused by the microscopic protozoan, *Trichomonas columbiae*, which attacked the mucosae of the upper digestive tract, causing caseous necrosis and pseudomembranes. Epizootologically, a carrier state in the adults was indicated. Many of the pigeons produced squabs which became diseased shortly after they were hatched, while other birds in the same loft produced consistently healthy squabs. The flagellates were always demonstrable in the lesions. The unique feeding habits of pigeons, with the squabs being force-fed by the parents until they are about 3 weeks old, favors the transmission of the causative parasite from infected but clinically healthy adults to the young.

Many cases of this disease were cured by carefully removing the cankerous proliferations and swabbing daily with 1:500 acriflavine solution or 2 per cent sulfathiazole suspension until the lesions healed. It seemed probable that the affected birds might have developed a resistance to the parasites similar to that which chickens develop against specific coccidia and this aided in overcoming the disease. Over 700 cases of trichomoniasis were treated and the birds released for full duty in the past six months. A loss of from one to four weeks of training time occurred in each case.

Elimination as a breeder of any bird with a history of trichomoniasis, or with

brothers or sisters infected seems to be the control method of choice. The mode of transmission warrants more investigation, since there is no factual research to substantiate the epizootiological indication.

Enterohepatitis (so-called by this officer) was apparently an invasion of the liver tissue, as well as other viscera by flagellated Protozoa which may have been identical to those causing "canker." The parasites were demonstrable in all cases. Somewhat circumscribed necrosis of the liver parenchyma similar to the lesions of "blackhead" in turkeys, enteritis, and peritonitis were characteristic lesions. Waller<sup>7</sup> and Allen<sup>8</sup> have described this condition in pigeons and turkeys, respectively. More investigation as to the cycle of infection and means of control appear desirable.

Arthritis, nonspecific enteritis, and coccidiosis were the principal miscellaneous causes of death. One case of proved tuberculous arthritis, caused by typical acid-fast organisms, was noted. Loft sanitation seemed to control intestinal metazoans effectively. Lice were controlled by dipping infested birds in sodium fluoride solution, twice at eight-day intervals.

The cause of death was not determined in 76 cases, 40 of which occurred when it was impossible to perform autopsies. Many culls were destroyed at that time.

One other disease was important since it caused the loss of several weeks of training, though very few deaths. Coryza and conjunctivitis or "eye cold" was characterized by increased secretion of tears and some swelling in the periocular region. Affected birds could not be trained nor used for message work until cured, which required from one to four weeks. About 25 per cent of the young birds under 1 year of age were affected during the period of this report, but few old birds were so diseased. The disease may be due to dust or the intense rays of the sun in this climate. However, some cases were contagious since birds in neighboring pens became sick about a week after birds with sore eyes were placed in the next pens. The disease spread within the lofts whether or not the birds were being flown. Limited bacteriological examinations have been negative.

Daily washing of the eyes with boric acid solution followed by drops of solution of zinc sulfate, 0.25 per cent, or of argyrol,

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15 per cent, usually effected a cure after a period of from one to four weeks, during which the birds were not flown. Birds were affected only once in most instances. More information is badly needed as to the most effective way of controlling this disease. For this, a study of causative factors is imperative.

At this station, pigeon pox was not a problem, hence vaccination was not practiced. Elsewhere, routine vaccination of young birds is accomplished. Traumatic injuries were treated according to the case. Fractured legs were splinted, since the birds were entirely satisfactory for message work afterward. Fractured wings did not heal in such a way that a bird could be used later and so most of those cases were destroyed.

Psittacosis or ornithosis is a highly contagious disease reliably reported in pigeons.<sup>6, 7</sup> Diagnosis requires special facilities. This disease is communicable to man. Its presence, either in the latent or active form, has not been determined at this station. Equine encephalomyelitis is another virus infection, transmissible to man and other mammals, which is known to affect pigeons in certain areas. No study has been made of this disease, at this station.

Three diseases which have caused the major percentage of the deaths among the pigeons of this organization are salmonellosis, trichomoniasis, and enterohepatitis. The loss of pigeons over a seven-month period is considered unduly high. However, since none of the diseases causing most of the deaths are thoroughly understood, it is difficult to do more than suggest some preventive measures. Conjunctivitis, coryza, or "eye cold" is another malady which causes much loss of time for birds on message work or in training. But little is known regarding the cause or control of this condition.

There is need for more knowledge about the diseases of the homing pigeon. This knowledge must be developed along scientific and practical lines. Armed with such factual information, a program to educate Army pigeoners on basic sanitary principles could be conducted by the veterinarians attached to the United States Army Signal Corps with tremendous advantage to the pigeon service.

#### ACKNOWLEDGMENT

Without the splendid cooperation of Major J. W. Adams, Jr. and the personnel of the Camp Claiborne Station Hospital Laboratory, much of the work reported in this paper would have been impossible. Appreciation is also due the Army Veterinary School for identification of the organisms submitted, and Dr. P. R. Edwards of the American Salmonella Committee for stock cultures, many helpful suggestions, and identification of organisms. This officer wishes also to express appreciation of assistance extended by other cooperating personnel.

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#### Nodular Worms of Sheep

Accurate timing helps greatly in controlling nodular worms of sheep, according to a current release of the USDA. While practically all nodular-worm larvae are killed on unused pastures during moderately severe winters, ewes carry the infection over between grazing seasons and thus become sources of infection for the new lamb crop. The ewes should be treated with phenothiazine. It is not injurious to the pregnant, but owing to danger from rough handling, the drug should be given in the feed. The recommended dose per ewe is 25 Gm. per lb. of moistened grain. It is convenient to treat pregnant ewes in groups of 10 at the trough. One treatment removes most all of the worms. Manure of the sheepfold should not be spread on pasture land as it may contain viable larvae. Changing pasture about every sixty days during the grazing season is an additional precaution.



# Control of Pulpy Kidney Disease (Enterotoxemia) of Lambs

O. H. MUTH, D.V.M., M.S.

Corvallis, Oregon

FIRST REPORTED by Gilruth<sup>6</sup> in New Zealand, pulpy kidney disease has received considerable attention by research workers. The comprehensive investigations of Bennetts<sup>2</sup> in Australia, incriminating *Clostridium perfringens* (type D)\* as the etiological agent, resulted in the recognition of the disease by Oxer<sup>11</sup> in Tasmania, Montgomerie and Rowlands<sup>7</sup> in North Wales, and Gill<sup>4</sup> in New Zealand. In the United States, Boughton and Hardy<sup>3</sup> and Shaw, Muth, and Seghetti<sup>12</sup> have isolated *Cl. perfringens*, type D, from naturally-infected lambs dead of the disease; and a somewhat similar, if not identical, condition occurring in feeder lambs has been recognized for many years in other widely separated parts of the country by Wing,<sup>13</sup> Newsom and Cross,<sup>8</sup> and Bell.<sup>1</sup> Obviously this disease is widespread.

**Symptoms.**—Thrifty lambs from 2 weeks to several months of age, either on luxuriant pastures or heavy grain rations, are affected. Death is sudden and symptoms are only infrequently observed. There is considerable variation in symptoms in individual animals—listlessness, incoördination, salivation, dyspnea, opisthotonos, convulsions, and coma being outstanding. Death occurs from within a few minutes to four hours after symptoms appear, with occasional longer periods elapsing, particularly in individuals exhibiting coma. Mortality of affected animals approaches 100 per cent. Losses in some areas are severe, sometimes amounting to 50 per cent of the lambs in a flock.

**Lesions.**—Animals dead from this disease usually show characteristic lesions. If

examined soon after death, the kidneys are usually swollen and markedly congested. The capsule strips easily. If from one to three hours elapse before autopsy, the kidneys frequently lose much of their normal consistency and are decidedly pulpy. The blood vessels of the small intestine are injected, and reticulated patches of congestion and hemorrhage are seen through the wall. The pericardial sac is distended with an abnormal quantity of partly clotted straw-colored fluid.

Subepicardial hemorrhages are frequent and subendocardial hemorrhages are constant. In some instances, there is considerable congestion of the lungs.

Since this is a true enterotoxemia, attempts to recover the causative organisms except from the digestive tract, are negative when freshly dead animals are examined.<sup>2</sup>

## METHODS OF CONTROL

In his original paper, Bennetts<sup>2</sup> reports encouraging results in the control of pulpy kidney disease from the use of formalized cultures and by the restriction of feed. He also suggested the use of antiserum and various management practices. The Ohio Agricultural Experiment Station<sup>10</sup> reports successful control in feeder lambs by the substitution of molasses for a part of the grain ration. Further trials,<sup>1</sup> however, indicate that not all batches of molasses have the same preventive properties. Gill<sup>5</sup> was first to report the successful use of antitoxin.

Since the disease in Oregon has been limited largely to lambs on pasture and does not appear with yearly regularity in the same flocks and bands, efforts at the station have been largely confined to the use of antiserum that can be employed during outbreaks. Initial trials with the product, the results of which have justified its continued use, were reported by Shaw, Muth and Seghetti.<sup>12</sup>

Since circumstances incident to the war have made importation of antiserum from

Presented before the seventy-ninth annual meeting of the American Veterinary Medical Association, Chicago, Aug. 24-27, 1942.

Technical paper No. 414 of the Oregon Agricultural Experiment Station. From the Department of Veterinary Medicine, Oregon State College, Corvallis.

\*Bergey's Manual of Determinative Bacteriology, Fifth Edition, approves the terminology *Clostridium perfringens* in reference to that species of bacteria previously referred to as *Clostridium welchii*. It appears logical and convenient to retain the serological type classification of Wilsdon; namely, types A, B, C, and D.



Britain uncertain, and since no commercial domestic supply has been found, it has become necessary for this station to produce that product.

#### MATERIALS AND METHODS

**Horses.**—Seven ordinary ranch horses, varying in age from 12 to 15 years and in weight from 1,200 to 1,500 lb., were used for antiserum production.

**Cultures.**—Cultures of *Cl. perfringens*, type D, isolated by Shaw, Muth and Seghetti<sup>12</sup>, from the intestines of lambs dead from naturally occurring, pulpy kidney disease and capable of producing toxin lethal to mice within twenty-four hours when injected in 0.02-cc. doses, intravenously, were employed.

**Production of Toxin.**—The medium for the production of toxin was prepared in the following manner: Twenty Gm. of dehydrated egg was added to 1,135 Gm. of fresh, ground, lean horse muscle. (No water was added at this point in preparation since there was no desire to extract the horse meat.) This was subjected to 15 lb. steam pressure for one hour. The small amount of liquid escaping from the mixture was drained and saved. The meat and egg mixture was then reground through a fine plate to make a fine mash and placed in a 3-liter flask. After removal of fat, the liquid portion was added to the flask containing the egg and meat. The following substances were then added:

- 20 Gm. neopeptone (Difco)
- 100 Gm. marble chips
- 200 Gm. iron wire (cleaned with HCl)
- 1000 cc. distilled water
- 60 cc. 10% sodium hydroxide

The resulting preparation was well mixed and sterilized by subjecting it to 15 lb. steam pressure for two hours. Upon cooling to room temperature, the final reaction of the medium was pH 7.6 to 7.8.

The flasks were inoculated with 10 cc. of a 24-hour culture of *Cl. perfringens* grown in thio-glycollate medium and incubated at 37 C. for seventy-two to ninety-six hours.

Following incubation, the flasks were examined for contamination and the toxin tested for potency. Toxins not lethal to mice within a twenty-four hour period, after injection in 0.02 cc. amounts, intravenously, were discarded.

The toxin was separated from the solids by filtration, using vacuum to hasten the process. Larger particles were first removed by means of several layers of gauze placed in a Buchner funnel. The toxin was further clarified by passing through pads consisting of a mixture of cellulose and asbestos fiber built on coarse filter paper in a Buchner funnel. (Ordinary facial

tissues were found to be a suitable source of cellulose fiber.) The toxin was finally sterilized by passing through a Seltz EK filter.

Toxin so prepared was found to retain its potency when stored at 4 C. for as long as one year.

Initial injections of toxin into horses consisted of 1-cc. doses given intramuscularly. The injections were made at four-day intervals and the amount gradually increased so that it reached 100 cc. on the 148th day. Thirty days later the titer of the horse's serum had reached a point where 0.01 cc. of serum would protect against 10 m.l.d. of toxin when mixed, held at 37 C. for one hour, and injected intravenously into mice. Although there was slight variation in the serum from individual horses, daily doses up to 120 cc. of toxin over an additional period of ninety-two days failed materially to increase the titer. These results are similar to those reported by Boughton and Hardy.<sup>3</sup>

When the titer of the horse's blood had reached a point where 0.01 cc. of serum would protect mice against 10 m.l.d. of toxin they were bled and after a rest period of one week injections of toxin were resumed. It was found that this schedule was apparently too severe for the horses since the blood titer did not increase satisfactorily following such a brief rest period. After a rest period of seven months the titer response was satisfactory to a series of subcutaneous injections made at four-day intervals. In this instance, the initial dose was 40 cc. followed by a series of 80-cc. doses of toxin. This series of injections resulted in a satisfactory antitoxic titer within thirty-eight days.

Coagulation of blood collected was prevented by the addition of 2 per cent of a saturated solution of sodium citrate. The blood was stored in a refrigerator over night and the antiserum removed. This was at first merely preserved with merthiolate\* 1 : 5,000 and stored in the refrigerator until used. It was found, however, that antiserum so treated developed a precipitate upon storage. In the production of more recent lots of antiserum, additional citrate was added after separation from the cells to make the final concentration 4 per cent. The antiserum was then heated to 60 C. for one hour to precipitate the fibrin and preserved with 0.3 per cent tricresol, the tricresol being added as a 50 per cent solution in ether.

#### USE OF ANTISERUM IN THE FIELD

Field trials using antiserum so produced were conducted during the summer of 1941 in a county where the disease appears to a varying extent each year, but the incidence

\*Merthiolate is the trade name for sodium ethyl mercuri thiosalicylate, manufactured by Eli Lilly and Company.

of the disease was not very high that season. Six hundred and seventeen lambs received 5 cc. of antiserum subcutaneously. Six hundred and forty-three lambs in the same flocks were left as checks. At the time of marketing (approximately sixty days after injection), 2 (0.23%) of the treated lambs and 28 (4.35%) of the untreated lambs had died. Since it was impossible to examine all dead lambs, a positive diagnosis could not be made in each instance. Previous experience in the county, however, indicates that very few lambs of that age are lost from other causes.

During the season of 1942, administration of antiserum in the county referred to was not under the immediate control of the experiment station. The results here submitted are based on reports from owners.

That season (1942) was attended by severe losses. In one instance, 31 out of 70 lambs in one flock died before the administration of antiserum. Over 3,000 lambs in the area were treated. Losses occurred in most flocks before the use of antiserum and stopped immediately following its use. One flock, however, which was treated early in the season, experienced a 1 per cent loss, occurring after the lambs had been injected four weeks.

#### DISCUSSION

While Newsom and Thorp<sup>9</sup> assumed that overeating of grain was an outstanding factor in producing a similar disease in feedlots, it is difficult to think of overeating as important when lambs from 2 weeks to 6 months of age are run on pasture. This is especially true when losses are experienced in only one of two adjacent pastures separated by ordinary wire fencing and containing similar forage.

Inasmuch as some of the lesions observed upon autopsy of freshly dead animals are predominantly petechial and ecchymotic hemorrhages of some of the serous membranes, lesions which have been described as occurring in hemorrhagic septicemia, there is no doubt that this disease has been frequently diagnosed as hemorrhagic septicemia.

Since the outstanding lesion of this enterotoxemia is a rapid postmortem decomposition of the kidneys, "pulpy kidney disease of lambs," the nomenclature em-

ployed by several of the earlier workers with this disease seems quite appropriate.

Horses sometimes showed evidence of severe shock following injections of toxin. Profuse sweating frequently occurred. There was also dyspnea, increased cardiac action, and inability to stand, in some instances, following the larger doses of toxin. These reactions were treated with adrenalin with apparent relief; but evidence indicated that there was no advantage in giving the larger doses of toxin. There was a tendency for the legs to swell, but no abscesses were produced.

In order to make good gains, lambs must be well fed. Because of this, restriction of lambs' rations as a method of control is not popular with sheep owners.

From the standpoint of control, the use of killed cultures and toxoids does not appear promising. As the disease appears irregularly, sheep owners do not anticipate losses and probably would neglect to have their animals treated with these products early enough to acquire active immunity. The use of toxoids might prove practical where the disease occurs with regularity.

The use of antiserum cannot be considered as a perfect control method. The cost of this antiserum is necessarily high. Also, the period of protection afforded by passive immunity is of course limited. In our experience, however, outbreaks of the disease have been rather short in duration and the use of antiserum has usually given protection during that period.

#### CONCLUSIONS

Antiserum was prepared by hyperimmunization of horses with toxin from cultures of *Clostridium perfringens*, type D, isolated from lambs dead of pulpy kidney disease.

This antiserum has apparently proved efficient in controlling outbreaks of pulpy kidney disease.

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## "Whiskey"\* (1910-1943)

Dec. 31, 1943, will be a memorable day for officers and enlisted personnel at Fort Snelling, Minn., for it marks the death of our mascot horse, Whiskey, 33 years old, the most loved, talked of and thought of pet and mascot on the Post. For the first time since the year 1820, there is no horse on the Post of Fort Snelling.

Whiskey came to Fort Snelling in 1921 with a contingent of horses from Montana, and was declared a "notorious bronco and outlaw." Disagreeing with that belief, Lieutenant (now Colonel) Hazelrigg, a lover of horses, requested that he be granted the custody of the "outlaw," and he proved that Whiskey was an outstanding horse. After training the horse to jump over a team of mules and do other stunts, Whiskey became an outstanding show horse. It is said that he was one of the first horses to master the trick of leaping through flames. Whiskey performed for the public

[\*When the death of Whiskey and his military funeral was widely announced through the press and radio, Colonel Keeley consented on our request to furnish the above sketch about this famous mount. Station Veterinarian Col. E. C. Cook, V.C., and State Fair Veterinarian Elmer W. Berg were cosigners of the death certificate. Having won his "purple heart" in times of peace, the tribute paid to Whiskey is the true expression of normal emotions.—Editor.]

on many occasions, and gave exhibitions at state and county fairs and many horse shows. His last public performance was in 1941 at the public smoker given to raise money for his feed. He marked the era at Fort Snelling that witnessed the Army's change from horse power to mechanized might.

When Colonel Hazelrigg transferred from Louisiana to the Pacific Coast, he went out of his way more than 2,000 miles to come up to Fort Snelling to see his aged friend Whiskey, then 33 years of age.



Col. Harry F. Keeley, commanding officer, Fort Snelling, places a floral wreath on the grave at the burial of "the most famous horse in the United States Army." Dr. E. W. Berg (KCVC '10) is second from the right.

Whiskey recognized the Colonel immediately, charged up to him and nuzzled his former master and trainer in an affectionate way that words cannot describe. The Colonel chatted in a language that only he and Whiskey knew.

Whiskey is mourned by every officer and enlisted man on the Fort Snelling Military Reservation, and especially Colonel Hazelrigg, who is stationed in Oregon. He was buried with military honors between three towering elm trees near the pasture in which he grazed for so many years. His grave overlooks the beautiful Minnesota River Valley. Military authorities have pledged that Whiskey's grave will never be disturbed.

The members of the Officers' Club of Fort Snelling, who adopted Whiskey as their mascot, are going to erect a monument in his memory.—Col. Harry J. Keeley, Commanding Officer, Fort Snelling, Minnesota.



# SURGERY & OBSTETRICS

AND PROBLEMS OF BREEDING

## Malignant Lymphoid Tumors in Horses

RUSSELL A. RUNNELLS, D.V.M., M.S., and E. A. BENBROOK, V.M.D.

Ames, Iowa

OUT OF more than 600 tumors of domestic mammals examined in our laboratory during the last twenty years only 6 have been local or widespread lymphoid growths in horses. The simplest of the lymphoid tumors, the benign lymphoma, was not encountered. The malignant lymphoma, formerly called lymphosarcoma but now designated lymphocytoma, was found four times in a more or less primary state and twice with widespread distribution. In these 6 cases of lymphoid tumors, white cell counts of the peripheral blood were not made. It is not known, therefore, whether these lymphocytomas could be designated leucemic or aleucemic. None of the cases, however, resembled either lymphatic leukemia or pseudoleukemia enough to cause any difficulty in making a diagnosis.

The 6 horses that furnished these lymphocytomas ranged in age from 5 to 23 years. With this variation in only 6 animals there was naturally no correlation between age and tumor incidence.

The location of the lymphocytomas was not uniform. In 2 horses, it was not difficult to detect the primary neoplasm since there was as yet no apparent metastasis. The tumor in one of these cases involved a submaxillary lymph node and in the other the conjunctiva and cornea of the left eye. In the latter case the neoplasm must have originated in a lymph follicle of the conjunctiva and then have been transplanted to the cornea by direct contact. In a third horse, a single large tumor appeared in the liver. This animal was an ambulatory clinic case on which a necropsy was performed on the farm. It may have been that this

hepatic neoplastic growth was a secondary and that the primary tumor was not discovered. In a fourth horse, the lymphocytomas apparently originated in the lymph follicles of the rectum and small intestine and metastasized to the mesenteric lymph nodes.

The 2 horses with widespread lymphoid hyperplasia are of special interest. The essential facts with reference to them are as follows:

*Case 1.* — A 10-year-old gelding was brought to the clinic for the treatment of a swelling about 18 cm. in diameter located at the base of the left ear. The owner stated that the swelling had been suppurating for eight months. There was no history of a previous injury to this area.

A biopsy was performed and frozen sections were made. Histologically, the tissue had the appearance of a fibrosarcoma. This diagnosis led the clinicians to make a further examination and, as a consequence, it was discovered that the tumor had already metastasized to the left thyroid gland and to all the cervical lymph nodes. The owner of the horse was favorable to the suggestion of the clinicians that the animal be destroyed and a necropsy be performed.

The postmortem examination showed the metastasis to be much more extensive than first believed. Not only were the left thyroid gland and the cervical lymph nodes involved, but metastases were present in both lungs, the bronchial lymph nodes, the liver, the pancreas, the bladder, left ureter, and the myocardium of the right atrium and left ventricle.

A study of paraffin sections made of the primary tumor and of several of the metastases proved the biopsy diagnosis to be in-

From the Department of Pathology, Division of Veterinary Medicine, Iowa State College, Ames.

correct. The parent type of cell was the lymphocyte. The primary tumor was, therefore, a lymphocytoma and the widespread condition could be designated lymphocytomatosis.

*Case 2.*—An aged 1,200-pound gelding in poor condition was entered at our clinic. The horse had been failing rapidly in health for the past five or six months. Beside emaciation and anemia, the most prominent symptoms were a bilateral nasal and ocular mucopurulent discharge and an enlargement of the superior cervical and prepectoral lymph nodes.

Among the numerous lesions in this animal, those of lymphoid hyperplasia are of particular interest here. This does not mean, however, that the other anatomical changes were not important. They were, because they owed their presence to the over-development of the lymphoid tissue, but in this report we are concerned primarily with the latter.

Lymph node involvement in this horse was confined to the superior cervicals, the prepectorals, the mesenterics, and the sacrals. All of these nodes were enlarged, rather firm in consistency, reddish gray, streaked with yellow, and showed only remnants of apparently normal lymphoid tissue. The superior cervical nodes encroached upon the guttural pouches, the nerves, the blood vessels, and other adjacent structures. The prepectoral lymph nodes so completely filled the thoracic entrance and anterior thorax that all normal structures were compressed and displaced. The mass of lymphoid tissue at the thoracic entrance was about 25 cm. in diameter. It was firmly adherent to the anterior pericardium and pushed the trachea and esophagus over against the thoracic wall. Interference with the left recurrent laryngeal nerve may have accounted for the atrophy of the left laryngeal muscles and resultant hemiplegia laryngis in this animal. The enlarged mesenteric nodes were ovoid masses about 8 by 4 cm. in size.

Along the course of the small intestine there were six or eight areas, from 3 to 8 cm. in diameter at which the wall of the intestine was thickened. One of these areas protruded through the serosa and was a reddish gray color. On the mucosal surface these areas were reddish gray in color, quite firm in consistency when incised but

rather soft on the surface. Two of these patches had depressed centers. All layers of the intestinal wall were involved in the neoplastic formation.

There was no apparent gross alteration of the spleen, but a 14 mm. sized nodule similar in appearance to the intestinal nodules was present in the liver. The left olfactory bulb, the corresponding nerve, and part of the olfactory tract were involved with a growth about 25 mm. in diameter and resembling the neoplastic growths already described.

Microscopically, the lesions in the lymph nodes and intestines were composed for the most part of large cells with scant plasma and vesicular nuclei. The cells may have been large lymphoblasts but many of them looked like the large mononuclears of tuberculous lesions. Frequently, they were found in well-defined groups (multinucleated giant-cells). In these giant-cells, the nuclei were not arranged in clear cut circles as they are in some of the specific, chronic infections such as tuberculosis, glanders, Johne's disease, actinomycosis, and actinobacillosis but were scattered promiscuously as they are in the Dorothy Reed type of giant-cell in Hodgkin's disease of man. In addition to these large mononuclear cells and multinucleated giant-cells, lymphocytes and eosinophiles were numerous. The presence of the eosinophiles attracted particular attention because their presence locally in such large numbers in animals is rare except in some chronic parasitic and bacterial infections. The presence of the eosinophiles is also a characteristic of Hodgkin's disease. A further resemblance to Hodgkin's disease was the presence of the fibrosis in the lymph nodes. Histologically, the structure of the hepatic nodule in this case was a dense collection of lymphocytes. In addition, the liver sections showed a rather general periportal lymphocytic infiltration. These lesions have a greater resemblance to those of Hodgkin's disease than the authors have ever seen in an animal.

#### SUMMARY

1) Six cases of malignant lymphoid tumors in horses form the basis of this report.

2) In 4 of the animals, the tumors were

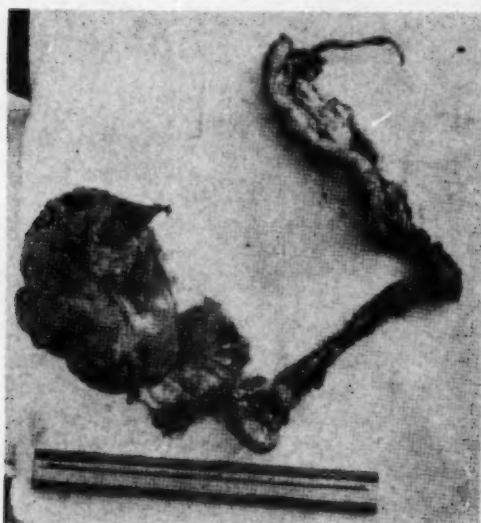
localized; in the other 2 there was widespread metastasis.

3) Age of the animals and location of the tumors were variable.

4) In 1 of the horses, in which the lymphoid hyperplasia had widespread distribution the lesions resembled those of Hodgkin's disease in man.

### Extrauterine Pregnancy in a Bitch\*

The subject was a mongrel in her third pregnancy, believed to be suffering from mummified fetuses. The temperature was 104.5 F., and a hard lump could be felt in the abdomen. A median line invasion of



the abdomen, under chloroform-ether anesthesia, revealed a highly vascular, hard mass difficult to bring out owing to its size. It was removed along with the uterus and cornua. The mass was attached to the left cornu and covered with the broad ligament, but otherwise not attached to the peritoneum. Its weight was 3 lb. 12 oz., or one-seventh of her total weight. The pregnancy was tubal and was thought to have occurred at the first conception. The operation was fatal in thirty-six hours.

\*Gascoyne, W. L., Gooch, R. H., and Gooch, L. A.: Extrauterine Pregnancy in a Bitch. *The Veterinary Record*, 55, (Dec. 11, 1943): 482.

There is no use to protest against atrocities to the grinning Japs. Buying War Bonds is more practical. "Buy more in '44."

### Artificial Insemination in Dogs

Writing in *Dog World* on artificial mating in dogs, Dr. R. L. McLaren, Columbus, Ohio, concludes as follows:

"The truth is that the difficulties of procuring semen from the males are extensive. The preservation of it for any period of time is a difficult matter. The placing of it in a capsule and properly placing it in the opening of the womb is also difficult. All this leads us to the conclusion that this particular method will not be a common practice but limited mostly to use by professionals."

Ejaculation induced by penile massage is the author's method of collecting the semen specimen. Incoördinate relation between insemination and ovulation in bitches is an obstacle leading to failure.

### Gelatin in Lieu of Plasma

Dogs tolerate large volumes of gelatin-saline solution for emergency transfusions without toxic reaction. This was especially true in the treatment of burns. After rapid massive hemorrhage or slow blood loss gelatin was superior to saline and brought about as rapid recovery as plasma transfusion. Gelatin produces the same degree of hemoconcentration but lacks the factor in plasma that retains blood pressure.—*Annals of Surgery*, Aug. 1943.



—World Wide Photo

A British pony broke a leg when he got tough with an American jeep—funny contraption to fetch in when there's a mountain trail to climb—so Bambi took a whack and now wears a splint in the veterinary corps hospital.



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# CLINICAL DATA

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## Hunches by Haasjes \*

To be an asset to his community, the veterinarian must be a good diagnostician.

The four P's of helminthiasis are found in: permanent pastures perpetuate parasites.

If heavy milkers were given a decent amount of sexual rest they would produce more and healthier calves and more milk at a lower cost per unit.

*Downers suggest:* fracture, paralysis, forage poisoning, azoturia, encephalitis, lead poisoning, milk fever, indigestion, exhaustion from being cast.

Having overlooked the unwritten law of *caveat emptor*, owners who've paid too much for an animal sometimes call the veterinarian to find some reason for returning it.

*Symptoms of fowl paralysis.*—Irregular pupillary outlines, pearl-gray eyes, blindness, leg and wing paralysis, crop bound, yellow comb and wattle, greenish gray diarrhea, thick shank bones.

It is a mistake to regard symptoms as of minor consequence in veterinary practice and that all treatment should be directed only at the underlying cause. Although fever and diarrhea are but symptoms, they, rather than the disease itself, frequently kill the sick.

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\*Notes from an address by Dr. Charles Haasjes, Shelby, Mich., made before the Junior Chapter of the American Veterinary Medical Association of Michigan State College, Nov. 11, 1943.

Unthriftiness in cows suggests traumatic gastritis, metritis or acetone-mia.

In treating mastitis every cow, every udder, every quarter is a medical problem to solve by knowledge, skill and good judgment.

*Symptoms of pig anemia.*—Fatigue, dyspnea, thumps, depression on exertion, accordion-like folds of the abdominal and pectoral skin.

A worm-free sow in a worm-free pen will raise a worm-free litter. Self-feeders prevent parasitic infections because the consumer can't put his feet in the feed.

Authorities list 23 or more causes of eczema in dogs, none of which may be right. They run the gamut from the intricacies of the hepatic functions to lousiness.

*Symptoms of trichomoniasis.*—Vaginal discharge, uterine discharge, failure to breed, irregular heat, early abortion, pyometra, several affected.

Vocal sounds are diagnostic in laryngeal paraplegia of the horse, nymphomania in cows; rabies in dogs, and pectoral pain (grunting).

*Symptoms of acetone-mia.*—Self-licking (mostly one spot), acetone odor in milk and breath, inappetence, constipation or diarrhea, wild appearance, lateral incurvation of the spine, grinding the teeth, partial or general paralysis.

Characteristic odors are smelled in: acetone-mia of cows; sarcoptic mange and distemper of dogs; decayed teeth, pulmonary gangrene, gastric colic, and thrush of horses; and bone necrosis. The odors of bone and soft structures differ.

# The Diagnosis of Canine Leptospirosis

D. L. COFFIN, V.M.D., and E. L. STUBBS, V.M.D.

Philadelphia, Pennsylvania

LEPTOSPIROSIS is an infectious disease of man, dog, rat, and other animals caused by spirochetes of the genus *Leptospira*. It presents a varied clinical and pathological picture. This variety of symptoms makes diagnosis difficult and frequently causes confusion with other conditions.

**Etiology.**—*Leptospirae*, like other spirochetes, are coiled, motile organisms which cannot be cultivated or observed by the usual bacteriologic techniques. The family *Spirocheta*<sup>1</sup> is divided into six genera: *Spirocheta*, *Saprosira*, *Cristaspira*, *Treponema*, *Borrelia*, and *Leptospira*. The first two genera are free-living water forms. The third genus is parasitic to mollusks only. It is, therefore, the last three forms that occur as pathogens in the higher animals.

*Borrelia* is a loosely coiled spirochete, usually with three to five coils. It is transmitted by arthropod vectors and is the cause of relapsing fever and various septicemias of man, chickens, geese, monkeys, and other animals. Other forms placed in this genus occur together with the fusiform bacillus in certain forms of stomatitis of man and animals.

*Treponema* is a more closely spiraled organism than *Borrelia*, usually with 7 to 15 coils. Most are transmitted by direct contact or immediate, indirect contact. *Treponema* causes syphilis and yaws in man, and occurs in many animals as well as man in necrotic lesions of the mouth and pharynx and, occasionally, other parts of the body.

*Leptospira* is so closely spiraled that, to the casual observer, it appears only beaded, hooked at one or both ends like the handle of a cane. Various *Leptospira* species cause Weil's disease of man and dog, and leptospirosis of man, dog, rat, and other animals. They also cause seven-day fever and harvest-field fever of man.

The rôle of the *Leptospira* as the pathogen in Weil's disease of man was recognized first by Inado and Ido<sup>2</sup> in 1915 and by Noguchi<sup>2</sup> in 1917. Later, the disease was found to have world-wide distribution. The existence of canine Weil's disease, better termed canine leptospirosis, was suspected in continental Europe before the first World

War. Krumbein and Frieling<sup>2</sup> observed a case of jaundice in a dog, followed, a few weeks later, by two cases of Weil's disease in persons who had been in close contact with the animal.

In 1917, Uhlenhuth and Fromme<sup>2</sup> found spirochetes in a dog's liver. They were able to infect a guinea pig from this animal. Courmont and Durand<sup>2</sup> in 1918, infected dogs with *Leptospira icterohemorrhagiae* and produced a fatal form of jaundice similar to the naturally-occurring disease. All of these observations were subsequently confirmed by Monti and his associates, by Korthof, Klarenbeek, and Wisner, and by Wirth.<sup>2</sup>

Okell, Dalling and Pugh,<sup>3</sup> working in England, proved that "kennel yellows" was caused by a leptospira in 1925.

The rôle of *Leptospira* in Stuttgart disease, sometimes called "dog typhus" or "stomatitis ulcerosa,"<sup>2</sup> was demonstrated by Lukes in 1922. He demonstrated spirochetes in 9 dogs suffering from this disease. Krivacek,<sup>2</sup> in 1924, found *Leptospira* in 17 dogs sick of Stuttgart disease. Later, Lukes and Derbeck<sup>2</sup> were able to infect guinea pigs by tissue-emulsion inoculation.

**Rôle of the Different Strains in the Canine Disease.**—Klarenbeek and Schuffner,<sup>4</sup> working in Holland, isolated a strain of *Leptospira* in 1931 which was serologically distinct from *L. icterohemorrhagiae*. This new species, or variant, was named *Leptospira canicola* in 1934 and has since been shown to occur extensively in Europe and in this country. In fact, about 85 per cent of our cases here in Philadelphia have been of this type.

The existence of leptospirosis as a cause of jaundice and Stuttgart disease in this area was long suspected by Dr. Wm. Lentz, who diagnosed a kennel outbreak of "yellows" as this disease in 1926 from his clinical findings. One of us (Stubbs) detected this disease in several dogs from southern Jersey in 1938. This diagnosis was amply confirmed, serologically, by Dr. K. F. Meyer who had previously demonstrated the existence of this disease in California.<sup>4</sup>

From School of Veterinary Medicine, University of Pennsylvania.

Prepared for the Journal of the American Veterinary Medical Association by invitation of Dr. Joseph A. S. Millar from a paper presented at the forty-third annual conference of veterinarians, University of Pennsylvania, Philadelphia, Jan. 6, 1943.

Since that time, we have been studying the disease in the Clinical Pathology Laboratory from the standpoint of practical, clinical diagnosis, for we feel that no great progress in treatment or control of any disease can be achieved till such diagnosis can be made with a fair degree of accuracy.

Several hundred serological and cultural examinations have been performed in our laboratory. Since an analysis of a portion of these was published<sup>5</sup> a number of new cases of active clinical leptospirosis have come to our attention. In a number of cases, we were able to observe the course of the disease from the onset to the termination by death or recovery. Most of them have been confirmed by serologic test, others by culture, and still others by both of these procedures. In one case, confirmation was achieved by serologic test, culture, and detection of the organisms in specially stained tissue-sections.

**Symptomatology.**—The symptoms first observed by the practitioner will vary according to the time the animal is seen, because the symptoms change suddenly from day to day. Very vigilant dog owners will present their animals for treatment at the first sign of abnormality. In these rare instances, we see the disease during the onset and will note the following symptoms.

High temperature—104.0 to 106.5 F.—is the rule during this stage. There is depression, often accompanied by a peculiar, hind quarter stiffness as though there were pain in that region. All cases have an injected, orange-red conjunctiva, and a large percentage of the animals show a coated tongue with reddened borders and acute pharyngitis with swollen, strawberry-colored tonsils which project from the tonsillar crypts.

A few have lip or cheek lesions which are either small, circumscribed areas of submucous hemorrhage or small, dry ulcers or they have lesions which are transitional between the two. Sometimes blood-stained diarrhea will be seen but more often, the animal is constipated, even though pasty, black feces cling to the thermometer when the temperature is taken. The hair is lusterless.

Early evidence of emaciation is observed, occasionally as soon as the first or second day. Vomiting is a frequent symptom.

Very often the owner will report that his animal has vomited once or twice on the same or previous day. These symptoms will persist with varying intensity from two to five days during the so-called septicemic stage.

Most dog owners will delay soliciting veterinary aid until the disease has progressed to the second stage. The inception of this stage is marked by a precipitous decline in the temperature. The high fever of the first stage is replaced by a temperature simulating normal. It is more commonly subnormal. Now the classical symptoms of toxic leptospirosis are seen. It is convenient to divide these symptoms into icteric and hemorrhagic or anicteric classes.

Aside from the decline in temperature, the symptoms seen earlier are still present, but are overlaid by more pronounced signs of different origin. Many dogs appear very emaciated with evidence of loss of muscular volume. They have sunken eyeballs and tough, leathery skin. The attitude is very lethargic, almost as though in a state of narcosis. These cases have a urinous breath and skin. A larger number show buccal ulcers than in the first stage. The majority show evidence of either blood-stained diarrhea or blood-stained vomitus or both. The temperature in such animals is usually quite low, 96 to 99 F.

Other animals in this second stage show jaundice. In some, it is barely perceptible as a lemon yellow, while in others it is plainly observed as a dark, brownish yellow. Jaundice is evident in the sclera, the conjunctiva, and in the mouth. In white dogs, the skin shows the change of color. Very often, jaundice is evident in the plasma or serum before it is visible clinically. In contrast to the anicteric dogs, these icteric animals remain in relatively good flesh. They have less temperature depression and lower incidence of bloody diarrhea. Small mouth ulcers are as frequent in the jaundiced animals as in the anicteric cases, though the urinous breath is not as common.

The second stage symptoms continue for the duration of the disease, differing only in their severity. They may terminate in death or spontaneous recovery. The recovery may be sudden if it occurs in the first stage or it may be protracted and



gradual if it occurs during the second stage, after degenerative changes have begun.

*Clinical Pathology.*—We have found that clinical laboratory examination is most essential in the diagnosis of leptospirosis. Examination of the blood and urine should never be neglected since much valuable information can be learned in no other way.

The blood picture is one of acute infection. The total white count is well beyond the normal range. Counts of 18,000 to 50,000 are the rule. Because 80 to 95 per cent of the cells are neutrophils, this increase in white cells is caused, wholly, by accelerated neutrophile-production. Furthermore, a definite increase in young forms of neutrophils occurs, more so than the severity of the disease would ordinarily suggest.

No significant change occurs in the red cells. Some dogs are slightly anemic. An increase in nucleated reds and reticulocytes in these animals points to active red cell regeneration. In others, no digression from the normal occurs. In most cases, a hemoconcentration occurs during the height of the toxic stage which causes the hemoglobin and red count levels to exceed the normal figure. This is due to dehydration and collapse.

The urine findings are those of an acute kidney degeneration and inflammation. The specific gravity ranges from slightly below normal to the middle of the normal range—1.012 to 1.030. The albumen test gives a strong reaction. Sediment, consisting of brown, granular casts, epithelial casts, erythrocytes, and leucocytes is found in nearly all cases. The bile reaction generally is positive. Indicanuria is present when tissue-wasting and debility have set in.<sup>5, 6</sup>

*Differential Diagnosis.*—A consideration of differential diagnosis is important for this disease can be confused with many others. No one symptom or even one group of symptoms is characteristic of leptospirosis alone. If an animal is observed during the first stage of the illness, symptoms of acute infection are seen. Therefore, distemper or any other acute infection must be differentiated.

Leptospirosis differs from distemper because gastric, enteric, and nephritic symptoms predominate. In distemper, respiratory symptoms prevail. The soft cough and watery, nasal and conjunctival exudate

of early canine distemper are not seen in leptospirosis. Furthermore, after the first day or two, the more severe blood and urine changes in leptospirosis should help distinguish the two.

Thus far, if we can eliminate distemper, we must presume it is leptospirosis until further symptoms of a differential character have developed because so little is known of the other acute infections of dogs.

If the animal is seen in the second or toxic stage of the disease, degenerative changes predominate. It is seldom that either icteric or hemorrhagic symptoms exist exclusively. Nearly all of our cases show a combination of the two, with one or the other predominating and, to some extent, masking the other.

When the icteric type predominates, we see symptoms of jaundice that could be caused by (1) catarrhal enteritis with bile-duct occlusion; 2) fibrosis of the liver; 3) hepatic tumors; 4) hemolytic icterus; 5) toxic liver damage from any cause as well as 6) leptospirosis.

The fact that in nearly all cases of this type, kidney lesions with resulting urine changes and a distinct neutrophilia accompany the jaundice, is most helpful.

These changes do not occur in uncomplicated, hepatic fibrosis, nor in tumors of that organ. Uncomplicated catarrhal enteritis is productive of little, if any, white cell dyscrasia and no significant urine alteration. We have observed cases of hemolytic icterus that were accompanied by urine alteration. These were characterized by grave anemia with signs of tremendous red cell regeneration as evidenced by very high reticulocyte levels. We have not observed such severe red cell changes in leptospirosis.

Furthermore, while the urine findings were generally similar to those of leptospirosis, certain aspects were different. In these, fewer casts and more leucocytes were seen. Numerous cocci also were found. We presume that the coccus infection of the urinary tract in these animals was the cause of the hemolytic icterus.

Toxic icterus from causes other than leptospirosis will create the most difficulty. In the case of metallic poisons, one should not, theoretically, expect an appreciable neutrophile reflection. No cases of this type have come to our attention.

We, ourselves, consider mouth ulcers, particularly if they develop in the septicemic stage or early in this stage, as very good evidence of leptospirosis, provided there is sufficient confirmative symptomatic evidence.

In the anicteric dogs, sometimes called hemorrhagic or nephritic cases, we have an entirely different problem. Here, we have to wrestle with the Stuttgart disease syndrome. In other words, we have to break it down into its component, specific-disease parts.

The symptoms of Stuttgart disease are: bloody diarrhea, vomiting, rapid emaciation, development of urinous mouth odor, buccal ulcers, and high blood-urea nitrogen levels.<sup>7, 8</sup> There appears to be ample evidence that these symptoms are, actually, those of uremia.<sup>9</sup> Most of the symptoms seen in the toxic stage of anicteric leptospirosis also result from the uremia which is present in this disease. The distinct urinous breath, severe and rapid emaciation, dehydration, and hemorrhagic gastroenteritis are distinctly a part of uremia.

Even mouth ulcers can result from uremia since it is known that bacteria attack the urea of the blood stream in the exposed mucous surfaces, thereby causing such lesions.<sup>10</sup> Besides, urea-nitrogen levels of 126 to 206 mg. per cent point to the existence of a definite uremia.<sup>6</sup>

It follows, then, that any other part of the Stuttgart complex or any other uremia might be confused with leptospirosis. The common causes of uremia in dogs are: 1) chronic kidney change with fibrosis, and 2) obstruction of the urethra by calculi or by hyperplastic prostatitis.

The chronic kidney change is not an acute process. It is not accompanied by a significant leucocytosis. Practically the only urine change in the terminal phase of kidney contracture is one of dilution or low specific gravity. Laboratory findings will tell the difference.

Uremia caused by retention due to calculi or other obstructions can be differentiated by a physical examination of the animal.

Blacktongue, as described by Chitterden and Underhill<sup>11</sup> and by Goldberger and his associates sometimes is placed in the Stuttgart disease complex. Here the symptoms of bloody diarrhea, stomatitis, and depres-

sion are caused by a vitamin A deficiency in the Chitterden syndrome<sup>12</sup> or a vitamin B complex deficiency in the Goldberger syndrome.<sup>12, 13</sup>

Blacktongue differs from leptospirosis because the mouth ulcers begin as pustules which later become necrotic and the mucosa sloughs away in shreds when rubbed with a cotton pledget. The ulcers of leptospirosis are flat and dry. In blacktongue, the odor from the mouth is a foul, decayed-flesh odor, while in leptospirosis, the odor is urine-like. In blacktongue, many fusiform bacilli and spirochetes are present in the lesions.<sup>14</sup> These organisms have not been found in our cases of leptospiral lesions.

We can find no evidence of pronounced kidney damage in the blacktongue literature. The only significant urine change is the excretion of porphyrin, whereas much urine change accompanies leptospirosis. Furthermore, blacktongue should respond to specific vitamin therapy, whereas leptospirosis will not.

Many animals have been brought in as leptospirosis suspects though they actually had Vincent's disease lesions. It is possible some of these were borderline cases of blacktongue. Otherwise, we have seen no naturally-occurring disease in dogs that conforms to the experimentally-produced blacktongue.

*Specific Laboratory Diagnosis.*—Clinical and clinical laboratory findings should be confirmed whenever possible, with specific laboratory tests. Serological procedure appears as the most workable method of accomplishing this. Other methods, such as darkfield study of urine and blood and histopathological examinations require a great deal of time on the part of the laboratory and have proved to be unfruitful. Culture is laborious but valuable as real or direct evidence as opposed to the presumptive evidence of the serologic test.

*Microscopic Agglutination-Lysis Test.*—The microscopic agglutination-lysis test has been the most widely employed confirmatory procedure. This test is highly sensitive and, apparently, highly specific. When used judiciously, it is reliable as a detection test.

The technique for this test is specialized. It requires darkfield equipment and a knowledge of darkfield technique. However, once the practitioner makes contact

with a laboratory capable of performing this test, he should have little difficulty, provided he submits suitable samples.\*

In the laboratory, this serum is titrated against an antigen composed of a culture of the organisms in liquid medium. After a two- or three-hour incubation, loopfuls of this mixture of serum and organisms are removed and examined by darkfield illumination. An antibody-antigen reaction results in either agglutination, lysis, or both.

In animals suffering from leptospirosis, these reactions vary from 1:10 to 1:300,000 in titer, depending on the duration of the disease. Antibodies begin to develop in measurable titer seven to nine days after the onset of the disease and quickly build up to a high level unless the infection is overwhelming. If an animal recovers after a protracted illness (and in our experience at least half do) it will carry this titer in gradually-declining concentration for one to two years.<sup>4</sup>

*Interpretation of Specific Test.*—How, then, can we interpret this specific laboratory data and correlate it with our clinical and clinical laboratory information?

We know that a certain percentage of outwardly normal dogs carry a titer to leptospirosis. This figure varies in different sections and on different samplings from the same area. In our own work, from samples of over 100 hospitalized, city dogs, 19 per cent carry this titer. Pack dogs, on the other hand, showed only 2 per cent positive titer.<sup>5</sup> Other investigators report an even higher percentage.

Therefore, caution must be exercised in applying serological evidence because a certain percentage of dogs suffering from other diseases will carry a titer caused by a previous attack of leptospirosis.

Clinical symptoms and clinical laboratory evidence must be considered carefully and interpreted with the specific laboratory findings.

*Macroscopic Test.*—The macroscopic or plate test has been advocated as an office procedure. The principal in this test is the same as the microscopic agglutination

test. The antigen, however, is concentrated by centrifugation to such a density that the agglutination can be observed grossly on a plate in the same manner as the plate test for Bang's disease.<sup>15</sup> Sometimes this antigen is stained with crystal violet because reactions are thought to be more easily discerned.

The high concentration of antigenic substance in this material theoretically makes it less sensitive than the microscopic test. Our limited experience with it here agrees with the more extensive comparisons of others.<sup>16</sup> It will probably serve a useful purpose as a clinical aid if this lack of sensitivity is kept in mind.

All serologic tests for the detection of leptospirosis suffer one serious limitation. They are not effective in the first five to seven days of the illness because antibodies are slow to develop in this disease as they are in many others. The macroscopic test fails to show antibodies quite as early in the disease as does the microscopic test.

Neither test can be relied upon as a detection test early enough for effective control measures to be applied. Too often the animal is dead before the antibodies appear.

In view of this, we must again emphasize the importance of using the test as a confirmatory procedure, not as an end in itself. By its use, one can learn the symptoms of this disease from personal observation. Then, with this solid background of confirmation, one can apply the knowledge so gained to succeeding cases with a greater confidence and accuracy of diagnosis.

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\*Samples should consist of at least 1 cc. of non-hemolyzed serum, clarified of red cells by centrifugation. A preservative should be added if the sample must be transported to the laboratory. The addition of phenol 0.5 per cent or merthiolate sol. 1:10,000 is satisfactory.



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## Streptotrichin

Streptotrichin, metabolic waste product of the soil fungus, *Actinomyces levendulae*, is described as possessing selective bacteriostatic effect on gram-negative and also gram-positive bacteria, including *Bacterium shigae*. Its possible importance in veterinary medicine is the action it is found to have on *Brucella abortus*, *in vivo*, chicken embryos and guinea pigs. It has been suggested as a treatment for Brucella infections. Like the other antibiotic extractives of soil organisms (tyrothricin, pyocyanase) its toxicity is low and effect on bacteria marked. Streptotrichin is mentioned editorially in the *Journal of the American Medical Association*, Dec. 15, 1943.

## Tyrothricin

It seems that the make-up of the germicidal extract of *Bacillus brevis*, named tyrothricin by Dubois (*Ann. Rev. Biochem.* 1942), is frequently misunderstood. That is, it is confused with gramicidin which is but one of its fractions. Tyrothricin is composed of two polypeptides: gramicidin (15 to 20%) and tyrocidine (40 to 60%). Although effective (by contact) against streptococci, staphylococci and certain bacilli of the gram-positive group, it is inactive (though nontoxic) when given *per os*. In veterinary medicine, its main use is for localized infections of soft tissues such as mastitis limited to the mucous membrane of the milk sinus and the larger

tubes leading to it, but is not ruled out for other local infections.

The commercial supply is a 2 per cent solution of the extract in 95 per cent of alcohol and this is diluted in sterile, distilled water to from 5 to 20 mg. per 100 cc. for use, according to the literature of human medicine (*Therapeutic Notes*, Dec. 1943).

## Milk Fever, Etiologically Speaking

From this arm chair, the whole gamut of biochemical, histopathological, clinical and pharmaceutical research on the etiology of milk fever adds up to one word, namely: *unknown*. Of course, it is no crime to propound and expound a few more theories, for, finally, one of them might make sense and get proved up. The occasion for this explosion is the article by J. G. MacDonald on "Parturient Paresis" in the *Canadian Journal of Comparative Medicine* (Dec. 1943) from which we quote: (that in) "six animals stricken with parturient paresis there was no uniform correlation of mineral deficiency in the group either before or after being treated with calcium gluconate," meaning as we've long suspected that here pops another balloon. The anemic, apoplectic, septic, toxic, glycemetic, and calcic hypothyses having been blasted, we'll have to go back to the old notion that milk fever is just a kind of parasympathetic jam that has to be jarred loose, or else.

## Curing Mastitis

Livestock and veterinary journals report numerous successes achieved in the treatment of mastitis with drugs (intraudder infusions), but when one hears of 90 per cent of cases having been cured, it is well to inquire how it was decided that mastitis was present and on what basis it was considered cured. When a dairyman says "cured" he means that the affected quarter is again giving the normal quality of milk but the veterinarian does not consider the quarter cured until infection is absent, regardless of the milk flow. This double standard of diagnosis and cure explains why the veterinarian's reports are not as spectacular as the advertisers of these remedies believe they should have been.—R. C. Klussendorf, D.V.M., in *Successful Farming*.

## Spontaneous Malaria in Canaries

C. B. Hudson, B.S., M.S.

New Brunswick, New Jersey

Canaries are used extensively as a laboratory host for the study of bird malaria. The spontaneous disease is rarely met with in them and few such cases have been recorded. Recently, Harmon<sup>1</sup> reported a fatal case in California. During the last twenty years a great many canaries have been examined at this laboratory, and malaria was found for the first time in September, 1942.

On Sept. 22, 1942, 3 dead canaries were presented for examination by a breeder whose establishment is in the city of New Brunswick. The owner stated that she had about 200 canaries and 18 parakeets in flight cages in her back yard. The latter, together with 18 canaries, were kept in a single cage. No losses had occurred among these. However, among the remainder of the canaries 12 were lost within a week. Most of those that died were young birds. The flight cages were constructed of coarse-mesh wire allowing ready access by mosquitoes. These were plentiful and were observed by the owner both outside and in the cages.

Postmortem findings were identical in all 3 specimens. There were pox lesions on the feet, and the spleen was greatly enlarged. Blood smears made from the heart blood showed numerous parasites in various stages of development in the red cells. Since pox is a highly fatal disease in canaries, it cannot be definitely stated whether death, in this case, resulted from pox or malaria. It is quite likely that both played a part. Blood smears were sent to Dr. Reginald D. Manwell, of Syracuse University, who identified the species as that of *Plasmodium cathemerium*.

It was decided to try to establish the strain in canaries. The owner was requested to present alive the next sick bird. Strangely enough no more birds were lost and it was not until almost a month later that a sick bird was obtained. In the meantime, it was realized that with pox in the flock birds immune to this disease would

be required for inoculation since nonimmune birds would very likely succumb to the pox and the strain of malaria would be lost. Fortunately, through the courtesy of the Odenwald Bird Company, of Den-ville, N. J., it was possible to obtain 3 birds known to be immune to pox.

The sick bird received from the breeder was thin and showed pox lesions on the feet. Blood drawn by heart puncture into a syringe containing citrate was inoculated into the 3 canaries. At the same time, blood smears were made and stained with Wright's stain, but no malarial parasites were found. Subsequent blood smears of the inoculated birds showed no evidence of infection. The sick bird died six days later. Autopsy revealed no enlargement of the spleen and a blood smear was again negative for malaria. The owner was again contacted early in December and it was found that she had had neither losses nor sick birds since.

## Atypical Rabies

Your article in the January, 1944, issue of the JOURNAL entitled "Recovery from Rabies" reminds me of 5 cases showing clinical evidence of dumb rabies that recovered. We handled the first one in the usual fashion: confinement, observation, etc. But, he did not die on schedule. After a few days he improved, was returned to the owner in a few weeks and went on living happily. The saliva samples were negative. Later we had 4 more of these cases. By that time, we were able to distinguish them from true rabies, yet I believe that anyone would have been justified in pronouncing them rabid. Comfort, food and water was the only treatment. My assistant, Dr. F. A. Anderson, watched these dogs closely. We could not account for so many of these atypical cases occurring in a relatively short time. We never had such cases before nor since out of 500 or more duly confirmed cases treated. All of these died or were killed after paralysis set in.

In the 5 recoveries mentioned, the paralysis did not advance far enough to take the animal off its feet.—W. A. Young, D.V.M., Director, The Anti-Cruelty Society, Chicago.

[Note.—Trigeminal paralysis (partial bulbar paralysis) with only local symptoms that disappear in two to three weeks is occasionally reported in the literature.—Editor.]

Journal Series paper of the New Jersey Agricultural Experiment Station, Rutgers University, Department of Poultry Husbandry.

<sup>1</sup>Harmon, C. M.: A Fatal Case of Spontaneous Malaria in a Canary. J.A.V.M.A., 101, (1942) : 502.

# NUTRITION

MATERIAL FURNISHED BY THE COMMITTEE ON NUTRITION

## Vitamin-A Deficiency in a Herd of Fat Cattle

C. C. HASTINGS, D.V.M.

*Williamsville, Illinois*

ON MARCH 10, 1943 a herd of purebred Aberdeen Angus fat cattle manifested many of the symptoms of vitamin-A deficiency so often observed in the feedlots of the Corn-belt. This was a mixed herd of 56 steers and heifers. All were home raised and fed principally on home raised hay and grain.



Fig. 1—A type of vitamin-A deficiency in cattle on a heavy carbohydrate diet.

They were calved on blue grass pasture in the spring of 1941, and were weaned in November of the same year. During the winter of 1941-42, they were fed red clover hay of very good quality and some oats with a small amount of shelled yellow corn. In May 1942, they were placed in the feedlot and had access to the same red clover hay, shelled yellow corn of the 1941 crop in a self-feeder, and a small amount of commercial cattle fattener. This same feed was continued until about the middle of October when they were started on the 1942 crop of yellow corn, and 1942 clover hay, but without the supplement. The hay was over ripe when cut, badly sunburned and of poor quality. This feed was con-

tinued until March 10 when the pictures shown herein were taken.

Most of the animals were night blind, and anasarca was evident in many. The edematous condition of the front legs, neck and scapular region observed in figure 1 was more or less characteristic. The hair was long, dry and rough. The skin wrinkled and appeared to be thick, which is quite common in vitamin-A deficiency of cattle on full feed.

Figure 2 shows a heifer that was nearly in the terminal stages. She could hardly walk and would get up only after several attempts. The eye discharge and swelling of the brisket region are evident. The



Fig. 2—A nearly fatal case of anasarca due to insufficient vitamin-A intake.

morning after this picture was taken she could not rise. Largely for experimental purposes, treatment was started by administering by the mouth one ounce per day of fortified cod liver oil. She gradually improved and in two weeks had apparently recovered except for the loss of considerable weight.

The herd was given last-cutting alfalfa



hay of good green color and recovery was prompt.

### DISCUSSION

While this case is not different from many others seen in similar herds in feedlots of the Cornbelt each year, it is of special interest because there is a prevailing opinion among many inexperienced feeders and nutritional authorities that cattle on full feed develop vitamin-A deficiency only when receiving white corn or yellow corn that has been stored about one year. This herd received fresh yellow corn from two different crops and developed avitaminosis A in a very severe form in less than ten months. Evidently the hay contained some carotene and cannot be entirely ignored as a possible source of provitamin-A carotinoids. Cattle on full feed ordinarily consume from one peck (14 lb.) to one-half bushel (28 lb.) of corn per head per day, depending almost entirely upon their size. When eaten in this quantity, yellow corn should prevent night blindness if its listing among the good sources of vitamin A for cattle is justified.

### Vitamin Deficiency and Phagocytic Activity

Mills and Cottingham (*Science*, Dec. 3, 1943) describe an important link between diet and resistance to infection. Working with rats, mice and guinea pigs they found an important relationship between vitamin starvation and activity of phagocyte cells. A reduction in phagocytic activity was noted when these animals were fed diets deficient in thiamin, riboflavin, pyridoxine, panthothenic acid and choline. The absence of A and D combined also seemed to reduce phagocytic activity.

Practicing veterinarians are familiar with the difficulties involved in treating vitamin-deficient puppies when secondary infections are present. The prognosis in such cases is usually unfavorable. In conducting deficiency experiments on dogs, the most serious complication is the development of bacterial infection in the depleted animal.

Morris and Russell (*J.A.V.M.A.*, November, 1939) called attention to several diseases which may be expected in vitamin-deficient animals and the rôle of vitamins in treating such conditions.

If it can be proved that body resistance due to increased phagocytic activity can be influenced by vitamin intake, then an important therapeutic observation will have been established.

### Feeding Weanling Pigs

A ration composed of yellow corn, low protein tankage, alfalfa, and salt, which is adequate for pigs weighing approximately 75 pounds, was found to be inadequate for weanling pigs weighing about 30 pounds.

Weanling pigs fed this ration showed various gross symptoms of the deficiency including growth failure, lack of appetite, lesions of the skin, rough coats, and in some instances vomiting, scours, and stiffness.

The specific factor or factors lacking in this ration are not known. As far as growth was concerned, the deficiency was overcome almost completely by supplementing the ration with vacuum dried liver. There were unexplained death losses among the liver fed pigs, and survivors, although they grew well, sometimes were lame and affected with dermatitis.

The supplementary feeding of a combination of pure B complex vitamins was virtually ineffective in correcting the deficiency of the ration.

The ration was made practically complete by substituting various combinations of soybean oil meal and alfalfa leaf meal for part of the tankage, and by including in the ration various combinations of soybean oil meal, carotene, and yeast.

Satisfactory growth was obtained when weanling pigs were fed:

Yellow corn .....	59.3%
Tankage (34% protein) .....	20.0%
Soybean meal (expeller process) ..	10.0%
Alfalfa leaf meal .....	10.0%
Salt (NaCl) .....	0.5%
Manganese sulfate .....	0.02%

The addition of dried brewer's yeast to the above ration gave somewhat better results.

It is apparent that weanling pigs require unidentified nutritional factors which need not be supplied directly in the rations of older and heavier pigs.—R. C. Miller, T. B. Keith, W. T. S. Thorp and M. A. McCarthy: *Nutritive Requirements of Young Pigs*. Bul. 449, Sept. 1943, Pennsylvania State College.

## Proper Feeding Helps Prevent Disease

In these days of scarcities of feeds it is important to watch rations closely in order to prevent feed wastage but at the same time provide adequate nutrition. Mild deficiency may be manifested only in poor gains; more marked deficiency may bring about actual disease. Following are some suggestions to keep in mind while feeding livestock:

**WATER** should be clean, plentiful, and easily accessible. It is especially important for growing, pregnant, and lactating animals. In winter, take the chill off if possible.

**ADDITIONAL** protein is needed for growth, reproduction, lactation and egg-laying over that needed for maintenance.

**THE** kind or quality of protein matters little for cattle or sheep; therefore, economy dictates the use of a protein combination low in price.

**CHICKENS** and pigs do better when receiving some animal protein; if it is not available, feed a variety of plant proteins.

**HAIRLESSNESS** and poor livability in baby pigs and goiter in calves may occur when iodine is lacking in the ration or when other components of the ration interfere with its use.

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**RAW** rock phosphate is dangerous to use as a mineral supplement unless it has been defluorinated.

**ALFALFA** which has been sun-cured, and exposure to direct sunlight are helpful in preventing rickets in animals.

**THREE** substances, limestone, steamed bone meal and salt, contain all the supplementary minerals usually needed; in fact, sometimes only one or two of them are needed.

**IRRADIATED** yeast is an economical supplementary source of vitamin D for mammals; chickens need other forms, such as those found in fish oils.

**OSTEOPOROSIS** and even broken bones may result when reproducing and lactating animals become depleted of minerals.

**NIGHT** blindness, "big leg" in cattle, and poor reproduction in other mammals and nutritional roup in chickens may occur when rations are deficient in vitamin A.

**SLIPPED** tendon or perosis may result in chicks and poults when rations are lacking in manganese or choline or both. Oats and soybean oil meal, respectively, are good sources.

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**CALCIUM** is needed, particularly by growing, reproducing, and lactating animals and laying hens.

**LACK** of vitamin D is the most frequent cause of rickets, although lack of calcium or phosphorus or too wide a ratio between the two may be responsible in some cases.

**OLD** or mature animals do not get rickets, but they may suffer from osteoporosis or skeletal depletion when calcium, phosphorus or vitamin D is lacking.

**SALT** is needed by all animals; salt poisoning is not likely to occur if the salt or mineral mixture is kept dry or if it is thoroughly mixed with the other concentrates.

**EVEN** storage under proper conditions does not prevent loss of the vitamin-A value of corn or of a mixed feed; thus it may be necessary to supplement some feeds.

**LACK** of riboflavin may cause curled-toe paralysis in chicks and lowered hatchability; milk and alfalfa meal are good natural sources of this vitamin.

**YOUNG** animals are born with a low reserve of vitamin A. It is important that they obtain the colostrum, or first milk, which provides this as well as other needed ingredients.—*Mimeographed circular from the Department of Animal Pathology and Hygiene, University of Illinois, Urbana.*

## Horse Meat for Pet Animal Feeding

A recent survey among a number of veterinary hospitals shows that about 90 per cent are using horse meat for feeding pet animals. About 80 per cent use some form of commercial dry dog food as a basic ration. A majority of the horses slaughtered for this purpose are probably beyond the age of usefulness and value for horsepower; their elimination may, therefore, be considered desirable in conserving feedstuffs badly needed for food-producing animals and poultry. However, the slaughtering of horses should not be allowed to reach a point where it will seriously affect horsepower needed on farms and for other essential uses.

The distribution of horse meat may be subject to interruption because of restrictions on refrigeration facilities; these restrictions, if enforced, would affect areas dependent upon the frozen product. This probably would encourage increased slaughter of horses locally to meet local needs or demands.

Horse meat is considered a good source of animal protein but is low in fat. When it is added to dry cereal-base food, the resulting ration, on a dry basis, may contain little more than 2 or 3 per cent fat. Such a ration, ready to feed, containing 70 to 75 per cent water, would contain but 0.5 to 1.0 per cent fat. A good dog food, on a dry basis, should contain at least 5 per cent fat, and 8 to 10 per cent is preferable. The present shortage of fats makes it difficult to meet this requirement. If, however, dogs and cats are fed rations formulated from horse meat and dry dog food, unsupplemented, fat deficiencies may be expected. These commonly appear in the form of dermatitis, scaly skin, poor coat, indigestion, etc.

### PRACTICAL SUGGESTIONS

A number of veterinarians who operate hospitals have submitted suggestions regarding the use of horse meat. One method is to add the ground meat to boiling water, bring to a boil again and then add kibbled biscuit, stirring well. The mixture is removed from the heat, covered, and allowed to stand for one-half hour. It should then be stirred frequently to hasten cooling.

Since horsemeat is very lean, the addition of some fat, such as suet, is advisable.

In some communities, local butchers slaughter old horses and mules, grind the meat and then pack it in paper boxes, after which it is frozen and delivered to retailers (feed and seed stores) about every other day. Where frozen horse meat is available, some veterinarians recommend feeding dogs a mixture of 75 per cent, by weight, of horse meat and 25 per cent dry dog food. Raw horse meat also is occasionally used for feeding cats.

Other suggestions include the use of pork and beef cracklings added to good quality dry dog food. This has been found to keep hunting dogs in excellent condition and the cracklings increase palatability of the ration. In hospitalizing pets with fastidious appetites, one veterinarian requests the client to supply their own rations, especially if the pet is to remain for more than a few days. This procedure has been found satisfactory not only for temperamental cats but also for dogs that are averse to accepting regular hospital diets.

The occurrence of disorders associated with low meat and fat intake emphasizes the necessity of advising clients to add a little meat and fat to the dry foods they may be using for their pets.

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## Fox and Mink Carcasses as a Source of Protein\*

The carcasses of fox and mink, otherwise a total loss, may be fed back to these animals successfully according to experiments carried out by Fish and Wildlife Service (*The Fur Farmer*, Nov., 1943). Fox carcasses, with entrails removed, were checked against equal amounts of horse meat.

The fresh fox carcass contains 19.9 per cent of protein and the fresh mink carcass, 18.6 per cent, as compared with 18.1 per cent for fresh horse meat, and both are two to three times richer in fat than the meat of horses. On a dry basis, the figures for protein are: fox, 57.3 per cent; mink, 50 per cent; and horse meat, 75.4 per cent. The carcasses were more palatable when the scent glands were removed.

\*The authors are Louis E. Harris, Fish and Wildlife Service, USDI, and John K. Loosli, Cornell University.



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# EDITORIAL

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## The Horses and Mules of World War II

Faith in human wisdom was severely strained on hearing how swamps and mud and jungles and narrow trails, rain or shine, were going to yield to the wonders of mechanized warfare—how the industries were going to show the generals the new way to fight land battles. Nature was to be taken by the horns and taught a lesson on the sagacity of modern man. Flying jeeps, 60-ton tanks and swiftly moving cannons, as if battlefields were like athletic stadia, were going to put the horse and the mule where they belong—on the plow, in the pasture or among the extinct vertebrates of history. But, what's happened?

We learn from *Parade*, picture section of the *Chicago Sun*, that when General Eisenhower crosses the Channel "huge numbers of horses and mules will go along," because the operations in Tunisia, Sicily, and Italy were gravely hampered from lack of them. Terrain where battles are fought has not changed since the campaigns of Napoleon and Foch. A war correspondent writes: "Except in Russia, horses have not played as big a rôle as they might have but their importance is growing daily." That is, four years of World War II have again taught a lesson in military tactics that should not have been so soon forgotten. "Stuck in the mud," "mired in the swamps," "stopped by the narrow trails," are apt to be thought of as incidental inserts to a war story, though the truth is they take toll in casualties, prisoners of war, lost ground and property, and perhaps victory for the more resourceful enemy.

It is now generally believed that the Russians out-maneuvered the Nazi forces with horses. At Stalingrad, horses and tanks working together broke the German offensive and won the greatest battle of the present war. Without animal transportation, the British could not have captured Eritrea and Abyssinia from the Italians and, says the same dispatch, "They [horses] are

doing valuable scouting in rugged hill country where jeeps stick on the road." The American 5th Army has formed detachments of mounted men in Italy with horses captured from the Germans and Italians, we are told. The Germans, having learned



—Courtesy of *Parade*

The Army Mule—Savior of Nations

a lesson from the enemy, are rushing animals to the eastern front in vast numbers. The Russian General Staff, even in the darkest days of rehabilitation, refused to break up the cavalry units. Now they are being complimented for their farsight, even by the enemy. Quoting: "Lack of four-footed animals lost Singapore and Malay. Using horses to carry supplies, haul wagons and artillery, the Japs got through the swamps while the heavy machinery of

the British bogged down. The truth is that many a battle and not a few wars have been lost for the same reason. Horses helped to capture Taganrog and routed the Germans on the Dnieper. The offensive around Leningrad appears to be an operation of the same pattern.

Up to this moment (February), our soldiers and the British carry heavy equipment and supplies (on their backs) which mules should be fetching up. According to



—From *Our Dumb Animals*

A Coast Guard photograph showing Marines in Hawaii attending classes on the care of horses. The Marines patrol the beaches on "Horses of the Navy."

experiences of two great wars which tacticians of 1944 should not have entirely forgotten, horses and mules rate high in maintaining fire power, and it is fire power that wins battles.

We conjure this subject in the *JOURNAL* from time to time without intent to preach sermons on military tactics nor to boost the utilization of species of domestic animals of which there are none too many for the prosecution of an all-out war. We speak of animals on battlefields with the highest solemnity, believing that lack of them is a road to defeat.

Soldiers and officers will recall that the advance of the American troops in the last phase of World War I was slow, that General Pershing was castigated by Premier Clemenceau for not moving faster, that the trouble was traced to the shortage of animals, and that the A.E.F. was then authorized to scout among the farms of France for horse replacements in the hope that the Battle of the Western Front might not be lost. General Pershing's history has put these facts on record and they have been emphasized by others for the edification of our people. Yet, the mention of animals in

the preparation of World War II, just twenty-five years later, brought jeers from the untutored. Swifter vehicular travel than animals provide was to change the big picture as if the battles of this war were to be staged on the well-trimmed lawns of the baseball parks. Rapid land travel, powerful explosives, ingenious contraptions, and airplanes only pave the way for the doughboy with his bayonet—the winner of all wars. World War II has taught again that troops going into action on a large scale without supplementing their transportation service with animals may be seriously harassed by the enemy's horsemen. Shades of our Wild West!

### Rear, Hind, Posterior, Caudal, Caudad

Perturbed over the frequent misuse of the word "rear" as an anatomical term, the view of Professor H. L. Foust, head of veterinary anatomy, Iowa State College, and member of the Research Council on anatomy and histology was sought, and here is his reply:

Anatomical descriptions, as in the case of any science, should be made in the language of that science. According to the best of my knowledge, the term "rear" is not used in anatomical descriptions, since it is limited in its meaning. It would not be applicable to both bipeds and quadrupeds. "Caudal" or "caudad" are preferable terms. The term "posterior" has been used much in anatomical literature, but since its meaning is somewhat ambiguous, as commonly used in referring to structures in bipeds and in quadrupeds, its use is waning and it should be dropped from anatomical descriptions.

As readers of veterinary literature of this hour know, some writers on mammary pathology write "rear teat," "rear quarter," etc., and err still further in making proper nouns of them in the abbreviations "LR" and "RR" to indicate left and right rear. The dairymen's term would be "hind," not "rear." So, "rear" is neither the scientific nor the popular term. It belongs to the category of misused words that Noah Webster started to put in their proper place "'way back when."

World War II, like the American and French Revolutions, is a struggle for freedom and self-government for all mankind. May it not have been fought in vain.

## World Food, Livestock Production and Rehabilitation

At the White House early in November, 1943, representatives of 44 countries signed an agreement setting up the United Nations Relief and Rehabilitation Administration. This is the outgrowth of the Food Conference held at Hot Springs, Va., earlier in the year, followed by the appointment of an "Interim Commission on Food and Agriculture" which worked during the summer to formulate the worldwide food organization now designated as the "UNRRA".

The objective of UNRRA is "not relief, not rehabilitation, but rather a worldwide organization to help people feed themselves." This is to be accomplished, according to press releases, "by building from the ground up", by checking soil erosion in China, for example; adding to the protein production of India, and helping each nation to achieve a balanced economy "such as that which provides good eating for the people of New Zealand who are generally considered the world's best fed." By some commentators, the UNRRA is described as a vast agency of international government, with far-reaching authority, colossal activities, and expenditures running into billions; on this last point, the assessment against the United States is estimated at upwards of  $1\frac{1}{2}$  billion dollars a year, a major share of the total cost.

Just how the lofty aims of UNRRA are to be reached has not been divulged; admirable as they are, the achievement of a "balanced economy" for member nations with limited natural and industrial resources is in itself a problem which almost defies solution if the people of such nations are to enjoy dietary standards which, for a variety of reasons, they never before have been able to attain or support.

In any event, agriculture will occupy a prominent position in the rehabilitation plans and, wherever ecological conditions permit, livestock and livestock products are certain to be important corollary developments. Although the working organization of UNRRA has not been announced, it is understood that it includes panels of experts in the fields of economics, agriculture, and nutrition, and that animal-disease problems are being given consideration by suitable committees in some of the principal partici-

pating countries. Since there is, of course, veterinary representation on these committees, it will be a matter of great interest to note the importance accorded animal diseases and their control as the livestock-production plans of UNRRA unfold. It is safe to predict that, if realism is at the core of these plans, there will be a worldwide expansion of veterinary services and an avowed appreciation of their essentiality to human welfare such as has never before been witnessed.

## The Honorable History of Veterinary Medicine

Up at New York the other day Dr. Patricia O'Connor, veterinarian of the Barrett Park Zoo, walked into the cage of a 135-pound African leopard and proceeded to amputate an ingrown claw. The leopard had been well doped with nembutal. So to Dr. O'Connor it was a minor, though doubtless sufficiently interesting, bit of surgery. To the New York papers it was a fine chance to have fun with veterinarians, especially since this one was an attractive young lady.

It is a curious fact that the response of most people to talk about veterinarians is usually amiable amusement, followed by remarks about "horse doctors." Yet veterinary science is no less ancient and no less honorable than the medical profession itself. Indeed, the study and practice of veterinary and of human medicine have paced each other since before the pyramids were built; and the former has made constant and invaluable contributions to the latter.

Louis Pasteur, for instance, was working in the long veterinary tradition when he began an investigation of chicken cholera, moved on to the fatal cattle scourge called anthrax and at last tackled the dread rabies. His results illustrate perfectly the close relationship between veterinary science and human welfare. He virtually wiped out an annual poultry and cattle loss from these diseases of more than 10 per cent, thereby increasing the available food supply at a critical period. His cure for rabies became a cure for hydrophobia

Reprint of an editorial appearing in the Jan. 22, 1944, issue of the *Baltimore Sun*.



in man—and in the process he established the vital principal of vaccination.

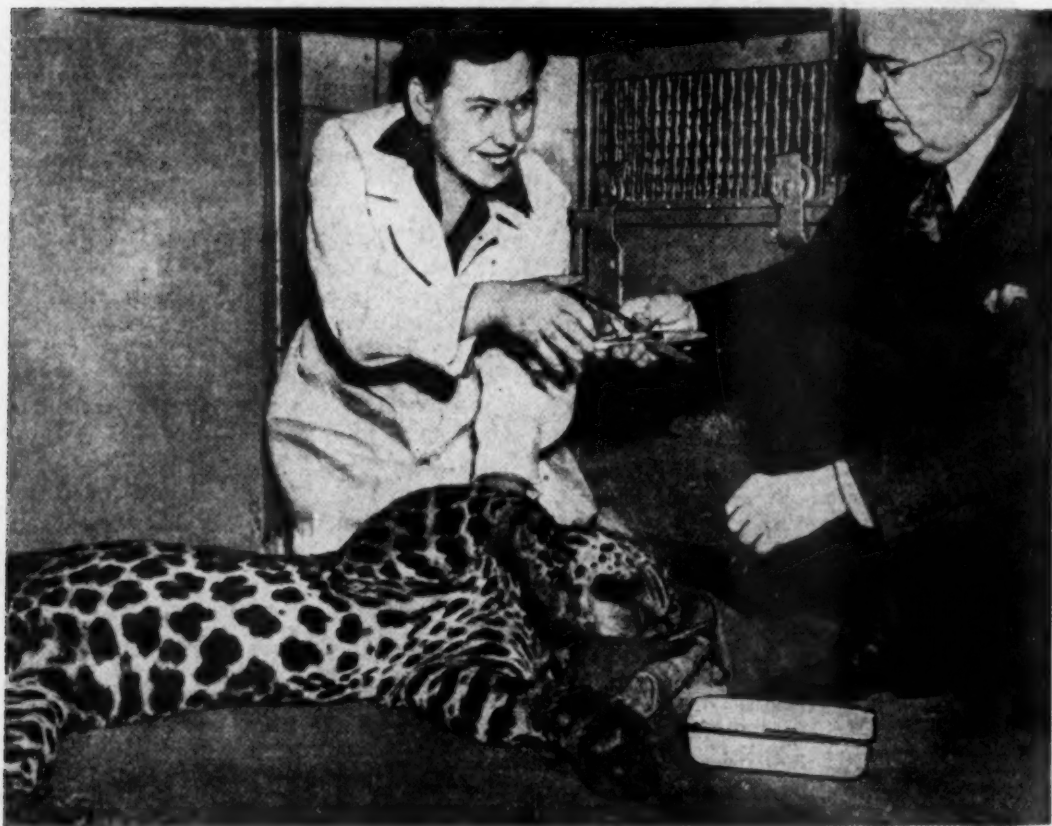
Similar examples could be cited in profusion from the time of Aristotle forward. Veterinarians were advancing the study of anatomy when other "doctors" were still mumbling incantations. They have always been fertile in the development of new physiological discoveries and new medical techniques.

Remember such things whenever tempted to talk about "horse doctors." The accredited veterinary schools have the highest scientific standards; and decades ago

the American surgeon general could state that the veterinary agencies and public health services are "closely related." Remember, too, that even in the depths of the depression the demand for veterinarians was so great that 100 per cent of the graduating classes could be placed immediately—and is still so great that they were among the first to be given specific occupational deferment by the selective service.

[Note: We are indebted to Drs. J. L. Vinson and Hulbert Young of Baltimore for this historical sketch, both of whom drew our attention to it.—Editor.]

### Just a Part of the Day's Work in Zoo Circles



—Photo from L. J. Goss.

Patricia O'Connor, D.V.M. (Corn. '39) removes an ingrowing claw from a 135-lb. African leopard at the Barrett Park Zoo, West New Brighton, Staten Island, New York. The leopard was anesthetized with nembutal. Dr. O'Connor is the wife of John L. Halloran, Jr. (Corn. '39) of the Halloran Veterinary Hospital, Stapleton, S. I., son of John L. Halloran (C.V.C. '02). A more important part of the case report from the surgical viewpoint is that, in the Doctor's experience, nembutal anesthesia in leopards is of uncertain duration. It may last a long while, the Doctor is telling Clyde Gordon, acting director of the zoo. We are indebted to Dr. Leonard J. Goss, well-known veterinarian of the Zoological Park, Bronx Park, New York City, for this interesting report.

## Education Program Brings Visible Results

With a substantially increased budget made available by the Associated Serum Producers, the educational program of the American Foundation of Animal Health will be further expanded during 1944. As in previous years, the material will be directed on a large scale to farmers and livestock breeders through illustrated articles, radio messages and cartoons on animal diseases. Aware of the attention this type of education attracted last year and the influence it had on stepping up animal production to unprecedented levels, veterinarians will be interested to know that the sponsors have laid plans for doubling the effort this year. The program will also embrace a series of paid advertisements in 18 leading publications during the spring and autumn months, together with regular news releases to weekly and daily newspapers. The object is to make farmers conscious of the losses suffered from livestock diseases and to increase their profits and production by encouraging the employment of veterinarians.

It seems more than coincidental that since the Associated Serum Producers started these educational programs, the production of farm animals has mounted, mortalities have been curtailed, and general interest in the work of veterinarians has been increased.

## "Amiable Amusement"

Attention is invited to the reprint of an editorial from the *Baltimore Sun* elsewhere in this issue for the reason that seldom is such an intelligent analysis made of the place veterinary medicine has occupied in the development of the civilization we ought to be enjoying. We are thankful for the editorial, very thankful, for nothing is more true than that, regardless of the lift veterinary medicine has given to human well being, it is still quite generally referred to with "amiable amusement," as the editor puts it. It's a term well coined. In milling with the crowd unseen all of these centuries, we've always known that the joke is on the jokester but we never had the knack of coining such a revealing term.

Shortly after the post-Renaissance period when veterinary medicine of modern times struck its stride, we discovered the etiology of our low rating. Food became so abundant when diseases of food-producing animals were mastered that no one stopped to thank the benefactor—the veterinarian who in these days of alleged culture remains the subject of "amiable amusement."

While waiting for Germany to apologize for the atrocities of their companion in arms, better buy more War Bonds and Stamps. "Buy more in '44" will bear repeating 'till '45 if the job's not done.

Cord or wire nets for entrapping the hay of military animals in the field were first used by the American 1st Army, A.E.F., in the Argonne sector in 1918.



—R.E.A. Official Photo

# CURRENT LITERATURE

## ABSTRACTS

### "Hunger and Disease in Nazi Nations"

The Division of Research, Bureau of Special Service of the Office of War Information has published a mimeographed report on the food, disease, and birth conditions in Germany, Italy, Czechoslovakia, France, Belgium, Holland, Norway, and Greece. The increase in disease rate, shortage of medical supplies, and food allowance per capita are described. The development of the birth rate in the same countries reveals little known aspects of ruthless methods.—*Magazine Bureau, OWI, Washington, D. C. Free.*

### Organic Iodine Compounds

This is a booklet issued by the Bureau of Entomology and Plant Quarantine, USDA, suggesting the use of organic iodine compounds to replace certain insecticides taken from the market by the war and stressing the surplus of iodine now available. Besides the nonimportables, many products normally used as insecticides are absorbed from the market to make war material. The booklet lists 294 organic iodine compounds, 112 of which were tested for their fungicide and insecticide action, and the remainder for their action against bacteria. The nomenclature is that used in *Chemical Abstracts*. A useful manual for the commercial field. [*Organic Iodine Compounds. By C. Verne Bowen, Agricultural Research Administration, United States Department of Agriculture. 18 pages. Iodine Educational Bureau, Inc., 120 Broadway, New York. 5, N. Y. Free.*]

### Re-Evaluation of Sulfa Drugs

In reviewing personal experiences with sulfa drugs, in a general hospital receiving patients from overseas, the author covers four cardinal questions: (1) toxic complications, (2) new sulfanomides, (3) the drug of choice for local use, and (4) prophylactic sulfanamide therapy for wounds.

Skin rashes are common but rarely dangerous; agranulocytosis is rare but serious; urinary obstruction (renal, urethral) is fairly frequent in hot climates; pathological examinations may show necrosis due to injury to the vascular endothelium and secondary, focal necrosis of the brain, heart, liver, lungs, spleen, lymph nodes, and adrenal glands. The latter are rarely apparent clinically. It is not clear how they depress the synthesis of B vitamins. Having less tendency to cake, sulfanilamide

is the drug of choice for local use. There is dramatic evidence that sulfanomides given internally lessen the incidence of local infection.

Summarized: Toxic reactions have not seriously limited the use of sulfa drugs. The discovery of new sulfa drugs better than the present group is not anticipated. Prophylactic sulfa therapy prevents systemic invasion and minimizes the spread of local infections, whether given by oral or parenteral routes. Among chronically affected casualties received at a general hospital, some are sulfa-resistant and others sulfa-sensitive. Debility contraindicates the use of sulfonamides. [*Major Champ Lyons, M.C., A.U.S.: "The Re-Evaluation of Sulfa Drugs." Bul. U.S. Army M. Dept., 72, (Jan. 1944): 34-40.*]

### USLSSA Recommends:

In a December meeting at Chicago, the United States Live Stock Sanitary Association adopted resolutions that commended the work of Dr. John R. Mohler, retired chief of the Bureau of Animal Industry; advocated a greater degree of uniformity in the rules and regulations of the various states governing the interstate shipment of livestock; urged actively organized campaigns within each state where nodular worms are prevalent for the control of the disease in sheep; recommended further grub control work, especially in cattle feeder producing states; suggested establishment of diagnostic laboratories within the states; recommended that all trucks used for transporting animals suffering from communicable diseases be cleaned and disinfected under official inspection before carrying further livestock shipments; and that the 28-hour law be made applicable to all forms of transportation of livestock.—*Editorial, The Cattleman (Fort Worth), Jan. 1944, p. 20.*

**Corrigenda.**—In the abstract on "Urinary Calculi in Sheep" (February, 1944 issue, p. 98, 2nd column, 2nd line from bottom), the word *sodium* should have read *magnesium*.

Under the headline "Hawaii", page 121 of the February, 1944 issue, dengue is mentioned. In error, as a protozoan disease, we are told by one who knows. Dengue is now called a virus disease. We pass the cause of the error to *Stedman's Medical Dictionary*, a supposedly exact lexicography, which says: "Dengue, a disease thought to be caused by a protozoan parasite transmitted by a mosquito of the genus *Aedes*." Dengue is not commonly indexed in books on veterinary bacteriology.



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## BOOK NOTICES

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### Pattern for Penelope

(A book review)

THIS NOVEL is the most comprehensive story ever written on the work and character of the American veterinarian, no matter what particular branch of veterinary medicine one pursues. It is the story veterinarians have been trying to tell the American people since the formal system of veterinary education was established after the War between the States, when for the first time the care of domestic animals loomed as a national necessity and a human obligation.

Intended to be a lesson on human conduct under the strain of mental hardships as well as a treatise on a vocation, both themes are treated with amazing expertness. The mental restraint of a level-headed city girl of 17 is woven into the work and entourage of an equally balanced veterinarian of thirty years experience in a small town community. The beautiful, nonmushy romance between Uncle Doc's niece and his undergraduate assistant keeps up reader interest while the salient facts pertaining to the practice of veterinary medicine are ingeniously threaded in. Obviously, the diversified sentimentalities and economic interests of animal owners, when disease and accident overtake their precious possessions, afford the golden opportunity to study the blessings of fine character and controlled emotions.

Penelope Austin (Penny for short) is a city-bred girl just out of high school whose health broke down from having lived too many years with a quarrelsome mother and a none-too-patient father, both of whom she loved. For a change of atmosphere, she's sent for a year to Aunt Sue's (Uncle Doc's wife) on the physician's orders, in lieu of going to college. Her companion is Pat, an Irish Terrier, which she raised from a pup. She likes to help around the hospital.

J. S. Drake, D.V.M. (Uncle Doc) an experienced, small town practitioner, has transformed the big stable into a modern, de luxe, small animal hospital lacking nothing in finesse and completeness; nevertheless, he continues his practice among the farmers and dairymen.

Tom Greer (Tom for short), going on 18, Uncle Doc's capable helper, and Penny mix with the young set and get to liking each other. But Tom, bent on being a veterinarian, is drafted into the army and gets assigned to the veterinary college—just what he wanted.

Mrs. J. S. Drake (Aunt Sue) is the sister of Penny's mother. And, what a philosophical

aunt she is. What these characters do routinely under well-rounded discipline, together with major and minor characters brought in, makes up a wonderful story of a successful veterinarian's life—suffering animals saved, animals that die, the technique of the modern practitioner in the handling of the sick and the injured.

Pat was stolen because Penny carelessly left a valuable dog tied to a tree near the highway while she went on an errand. Unfortunately, there is risk in leaving negotiable property lying unguarded in the open whether it's jewelry, pocketbooks or dogs. The theft of Penny's terrier is the cue for explaining the crafty ways of the dog thieves, the despair of losing a pet dog raised from puppyhood, and the difficulty police have in locating stolen dogs and catching the thieves. Moreover, since a dog is loved/liked/admired for itself alone, not for its kingdom, it is quite a trial to transfer one's devotion to a new dog, even if precisely of the same sort. Yet practical Penny did gradually adopt an Irish Setter as a replacement and when, a few months later, Pat was accidentally located in a faraway city, she permitted, not without remorse, the new owners to keep him as their rightful property because they had no reason to suspect that a pet shop in Akron, Ohio, was selling them a dog stolen in New York. There are gangs of dog thieves and dog fences with a flair for good dogs, but Penny was not the kind of a girl to go rudely into the legal process of repossessing her adorable Pat, since he had fallen into the home of fine people; but, the scene created by the meeting of Penny and Pat after several months of separation was, nevertheless, a dramatic lesson on the permanence of human-canine devotion.

The ways of dog-show management, the whims of the judges, the directives for "grooming" dogs for public contests, and the expanding popularity and utility of obedience tests are woven into this novel by having Penny go through the long, trying ordeal of training Pat's successor from scratch to C.D. Even Uncle Doc, who had never had much time for bench shows, got all excited over Penny's bashful fling into that interesting sport, an increasingly clean sport inseparable from the successful practice of small animal medicine.

Uncle Doc, after applying a Thomas splint and remarking that Stader, a veterinarian, had

invented a better one now used widely in man, had to explain to Penny that veterinary practice doesn't rest on treating dogs and cats. There are cattle, horses, mules, pigs, sheep, chickens, ducks, turkeys, and rabbits, too. These furnish the meat, milk, butter, eggs, cheese, and what not; and the T.B. test, like the one conducted at the Meadow Lake Dairy, has saved the lives of many children. And, do you know Penny that, "Away back, sometime in Europe, an old king founded veterinary schools and services and it's from then on that populations have increased." It was a French veterinarian who invented toxoid to immunize against lockjaw, and another discovered the remedy for hookworms, Dr. Drake reminds Penny. "I never know where to quit when I get to talking about these things. Give me those scissors, Tom."

Few of the major problems of veterinary medicine are dodged in *Pattern for Penelope*. The handling of a parrot, a tiny monkey, and a chinchilla are brought into the picture, not to mention the nursing of a dog, desperately sick with distemper, back to life.

Tom in the Army writes to Penny: "I'm going to be a veterinarian. It will take five years. Don't sit under the dogwood tree with anyone else, 'till I come marching home." So ends the most fascinating novel, we've ever read—fascinating because it delves into the most meticulous details of our too little understood vocation.

The obligation of every veterinarian is to purchase this book, to write the author his appreciation of work well done, and to see that it gets to the school teacher, to the children and to the school library. They will all enjoy it, but none will enjoy it more than you. [*Pattern for Penelope*. By Mary Wolfe Thompson. 276 pages. Longmans, Green and Co., New York and Toronto. 1944. Price \$2.25.]

## Noted Editor Dies

Dr. J. McKeen Cattell, the distinguished editor of *Science*, the weekly journal established by Alexander Graham Bell, died Jan. 20, 1944, after 49 years of service in the editorial field. Since 1900, *Science* has been the official organ of the American Association for the Advancement of Science. Another kind of editorial work by which Dr. Cattell greatly contributed to science was the preparation and publication of the volumes of American Men of Science. The first edition appeared in 1906, with subsequent editions appearing at stated intervals.

## Allergy

It is remarkable what a currency of words can be brought into so vague a subject as allergy—vague in nature rather than in its characteristic lustrum, so vague, in fact, as to have been shifted aside in the chase for the exciting causes of disease. The authors proceed to emphasize that allergy as a predisposing cause "is often as important as the eliciting agents," and therein lies the need of a better understanding of its mechanism. Perhaps, too much attention has been paid to exogenous agents to the exclusion of the endogenous ones responsible for the states of hypersensitiveness catalogued among the allergies. To elucidate the vagaries, the authors coin and define new words, among which are "pathergy," "hetero-allergy," "parallergy," and "metalallergy," and they give an impartial view of the disputed points. The old (B.C.) adage of the medical art that what will nourish one will poison another has changed only in the broadening of its applicability. That is, hypo- and hypersensitiveness (anaphylaxis, allergy) are no longer limited to the individual's reaction to certain foods or injections. In fact, the whole animal kingdom is "allergized," generally, locally, and passively, as we understand the authors' thesis. Moreover, "deallergization" is no small part of medical practice. The physician is constantly in the presence of allergy, and the goal is its prevention, diagnosis, and treatment. The subject is unfolded in 33 chapters of highly comprehensive reading material, devoid of far-fetched theories.

Part 2 in seven chapters, particularly important to veterinarians, is recommended for serious study. It treats, in practical fashion, of Inhalants, Ingestants, Injectants, Contactants, Physical Agents, Infectants, and Parasitic Agents. Here, one finds a brilliant treatment of our everyday problems, of the science involved in the diagnosis, management, and disease-eradication work in operation among diseases of farm animals (tuberculosis, glanders, brucellosis, trichinosis and other parasitisms, drug and plant poisonings, serum shock, tularemia, *et al.*). The extent of our interest in the phenomena of these is self-evident; to know more about them is a duty, together with the susceptibilities of allergic nature which are still untouched in our deepest studies. *Allergy* is a precious addition to veterinary literature. It shows how closely the everyday work of veterinarians is being woven into medical science. [*Allergy*. By Erich Urbach, M.D., Chief of Allergy Service, Jewish Hospital, Associate in Dermatology, School of Medicine, and Philip M. Gottlieb, M.D., Associate in Allergy and Instructor in Medicine, University of Pennsylvania. 1073 pages. Profusely illustrated. Cloth. Grune & Stratton, New York. 1943. Price, \$12.00.]

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# THE NEWS

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## Eighty-First Annual Meeting Chicago, August 22, 23, 24, 1944

At its 1943 session in St. Louis, the AVMA House of Representatives voted that the 1944 annual meeting should be held in Chicago since it was not feasible, under war conditions, to hold it in zone 3 (the South and Southeast) which under normal circumstances would have been entitled to it. At its winter meeting, the Executive Board set the dates of August 22, 23 and 24 for the eighty-first annual convention. The selection of hotel headquarters was left to the Committee on Local Arrangements.

### LOCAL COMMITTEE SELECTED

A skeleton committee on local arrangements was nominated in December by the Chicago Veterinary Medical Association and its organization has been approved by the AVMA Board of Governors. This committee is as follows: H. Preston Hoskins, Evanston, general chairman; C. N. Bramer, Evanston; E. C. Khuen, Evanston; C. L. Miller, Oak Park; O. Norling-Christensen, Wilmette; E. E. Sweebe, North Chicago; and W. A. Young, Chicago. Executive Secretary J. G. Hardenbergh will serve as general secretary.

### HEADQUARTERS—PALMER HOUSE

The first action of the Committee on Local Arrangements was to decide upon the Palmer House as headquarters. This assures excellent facilities and services for all meeting requirements.

### GENERAL PLAN OF MEETING

Following the war conference type of session held in 1943, President Charles W. Bower and the Board of Governors believe that the 1944 meeting should be made of particular interest and value to the rank and file of veterinary practitioners in their services to the livestock and poultry industries, with special emphasis on efficient production and conservation of food producing animals and the best utilization of feeds to make foods. The program will highlight the best thoughts on important problems of disease prevention, control, and treatment which veterinarians can translate into action in the livestock, poultry, and small animal fields. Nutritional aspects of health and disease will also be emphasized. All sessions will be general; the literary

program will comprise five such sessions in addition to the opening ceremonies on the first morning. No section meetings as such will be held, but the officers of the sections on General Practice, Sanitary Science and Food Hygiene, Research, Small Animals, Poultry, and Surgery and Obstetrics are obtaining speakers and panel discussions in their respective fields for the general session programs. In addition, motion picture demonstrations on a wide selection of subjects will be featured during the sessions.

### EXECUTIVE SESSIONS

Present plans call for meetings of the Board of Governors and various committees on Sunday, August 20; Executive Board and committee meetings on Monday, August 21, with the first session of the House of Representatives on Monday evening, August 21. The regular sessions will begin on Tuesday morning August 22, with the second session of the House on the same evening.

### EXHIBITS

A preliminary survey of prospective exhibitors (technical) has demonstrated a wide interest in the renewal of exhibits after a one-year lapse in this feature. The vote was overwhelmingly in favor of resumption and consequently, plans are being made to invite technical and commercial displays of equipment and products used by the profession.

Because of shortage of personnel on veterinary faculties and the staffs of institutions, and other factors, it is not planned to arrange for educational and scientific exhibits at the 1944 meeting.

### Can You Help Locate These Lost Members?

The aid of JOURNAL readers is solicited in locating the following members, mail to whom has been returned to the Association's central office. The last known address of each is given. Should you be able to provide information as to present residence, your advice *via* postcard or letter will be greatly appreciated.

Aasen, Stephen W., Marshfield, Ore.

Ament, Roland W., 104 Columbia St., Pullman, Wash.



(Continued from preceding page)

Baver, A. F., 248 E. Main St., Kutztown, Pa.  
 Bowie, B. S., Nimmons, S. Car.  
 Carlin, Louis, 330 Pleasant St., Belmont, Mass.  
 Corcoran, James B., 7 N. E. 9th St., Oklahoma City, Okla.  
 Cowart, Ray R., Arlington, Ga.  
 Farley, Herman, 720 S. Glenwood St., Springfield, Ill.  
 Hall, Howard H., Spooner, Wis.  
 Hoerlein, B. Franklin, Kansas City Q. M. Depot, Kansas City, Mo.  
 Holtzman, Jacob, Station Hosp., Army Air Base, Fort Douglas, Utah.  
 Klett, Wilbert M., Milford, Iowa.

Learmonth, R., P. O. Box 7093, Capitol Hill Station, Denver 6, Colo.  
 Martin, George A., Rolling Fork, Miss.  
 Moore, John W., c/o Amer. Pres. Bd. of Foreign Missions, India Office, 156 Fifth Ave., New York, N. Y.  
 Moughon, William C., Box 609, El Campo, Texas.  
 Myers, B. J., 618 S. Walker, Oklahoma City, Okla.  
 Siver, Dougal, 429 Wrightwood Ave., Chicago, Ill.  
 Steinman, F. C., 3536 Camp Bowie Blvd., Ft. Worth, Texas.  
 Tyler, Lindy, 805 Burlingame Ave., Burlingame, Calif.  
 Woods, M. M., 309 State St., Albany 6, N. Y.

## Additional Schedules of State Association Broadcasts

Following are the names of additional stations which are carrying the series of radio programs on livestock health sponsored by veterinary associations. These have been received since the schedule was published for eighteen states in the February, 1944, JOURNAL, p. 110.

It should be noted that four associations,

namely, New York, New Jersey, Pennsylvania, and Connecticut are collaborating in the series over station WEAJ in New York City. A total of 28 state associations have to date reported participation in this educational project, initiated by the AVMA in the interests of efficient livestock production and conservation of food producing animals.

State	Station	Location	Day of Week	Time	Name of Program
Arizona	KOY	Phoenix	Every Third Tuesday	1:45 p.m.	"Dinner Bell Hour" of the "Arizona Farmer"
	KSUN	Bisbee	Every Third Tuesday	1:45 p.m.	
	KTUC	Tucson	Every Third Tuesday	1:45 p.m.	
California (Northern)	KSRO	Santa Rosa	Every Monday and Friday	1:00 p.m.	"Market Reports"
Colorado	KFKA	Greeley	Every Saturday	12:30 p.m.	"Farm Program"
	KFXJ	Grand Junct.	?	?	"Intermountain Roundup"
Connecticut*	WEAF	New York	Every Monday	6:30-7:00 a.m.	"Modern Farmer"
Missouri	KMOX	St. Louis	Every Sunday	7:15 a.m.	"Sunday Country Journal"
New Jersey*	WEAF	New York	Every Monday	6:30-7:00 a.m.	"Modern Farmer"
			Every Saturday	6:30 a.m.	
Pennsylvania†	WHP	Harrisburg	Every Saturday	6:30 a.m.	"Sunrise Roundup"
Tennessee	WLAC	Nashville	Every Sunday	7:05 a.m.	"Livestock Health Forum."
Virginia	WDBJ	Blacksburg	Every other Saturday	12:45p.m.	"Farm and Home Program"
	WIBA	Madison	Every Tuesday	11:45 a.m.	"Farm Program"
Wisconsin	WLBL	Stevens Point	Various Days	Various Times	"Farm Program"

\*In collaboration with New York State Veterinary Medical Association.

†Also in collaboration with New York State Veterinary Medical Association over WEAJ.

# Student Enrollment and Veterinary Graduates Under Accelerated Curriculums

The last figures on student enrollment in accredited veterinary colleges were published in the JOURNAL for December, 1942 (p. 533) and, in the main, reflected conditions as the accelerated programs were beginning. Since that time, no tabulation has appeared, partly due to the fact that academic years in the various schools did not coincide but were staggered depending upon their divisions into quarters or semesters, and the different times at which the accelerated curriculums got under way.

Since only schools in the United States adopted the speed-up program, the first table contains no figures for Ontario Veterinary College and the University of Montreal in Canada. The totals in this table also have been adjusted

For purposes of comparison, the tables which follow have been divided into two periods covering 1943. The figures for the individual schools have been selected and adjusted from two different tabulations supplied by the respective veterinary deans, the first in May or June, 1943 and the second in December, 1943.

## Student Enrollment for First Half of 1943

SCHOOL	FRESH.	SOPH.	JUN.	SEN.	SPEC.*	GRAD.*	TOTAL	TOTAL 1942- 1943	CHANGE
Alabama Polytechnic Institute..	49	76	51	52	..	..	228	249	-21
Colorado State College.....	44	46	44	33	..	..	167	154	+13
Cornell University .....	37	34	42	37	..	..	150	156*	-6
Iowa State College .....	64	65	60	62	..	..	251	246*	+5
Kansas State College .....	56	60	50	54	..	..	220	215*	+5
Michigan State College .....	53	60	58	62	..	..	233	239*	-6
Montreal, University of.....	..	..	..	..	..	..	..	..	..
Ohio State University.....	79	63	70	59	..	..	271	259*	+12
Ontario Veterinary College.....	..	..	..	..	..	..	..	..	..
Pennsylvania, University of....	55	56	43	37	..	..	191	190	+1
Texas A. & M. College.....	66	87	52	66	..	..	271	266	+5
Washington, State College of...	43	46	35	39	..	..	163	154	+9
Totals (1st Half of '43).....	546	593	505	501	..	..	2145	2128	+17
Totals† (1942-43) .....	592	530	510	496	..	..	2128†	2206‡	+22

\*All figures on special and graduate students omitted.

†Totals adjusted for omission of Canadian schools from this tabulation.

‡Total number of students for 1941-42.

## Student Enrollment for Second Half of 1943

SCHOOL	FRESH.	SOPH.	JUN.	SEN.	SPEC.*	GRAD.*	TOTAL	TOTAL 1ST HALF OF 1943	CHANGE
Alabama Polytechnic Institute..	70	58	49	49	..	..	226*	228	-2
Colorado State College.....	45	48	40	31	..	..	164	167	-3
Cornell University .....	45	38	34	42	..	..	159*	150	+9
Iowa State College .....	65	65	59	62	..	..	251	251	0
Kansas State College .....	81	58	29	22	..	..	190*	220	-30
Michigan State College .....	57	53	48	65	..	..	223*	233	-10
Montreal, University of.....	7	6	7	5	..	..	25	30	-5
Ohio State University.....	41	75	61	69	..	..	246*	271	-25
Ontario Veterinary College.....	33	23	38	19	..	..	113	142	-29
Pennsylvania, University of....	51	47	49	42	..	..	189*	191	-2
Texas A. & M. College.....	58	67	67	62	..	..	254*	271	-17
Washington, State College of...	42	47	35	39	..	..	163	163	0
Totals (2nd Half of '43).....	595	585	516	507	..	..	2203	2317	-114
Totals (1st Half of '43).....	546	593	505	501	..	..	2145	2128†	+17

\*All figures on special and graduate students omitted.

†Total number of students for 1942-43.

so that the net change gives an accurate comparison with the enrollment figures for 1942-43.

Attention is called to the fact that all figures on special and graduate students have been eliminated from the tabulations and the individual figures and totals adjusted accordingly. By so doing, a more accurate comparison is obtained. Several deans submitted figures on preveterinary student enrollment which have also been omitted, since this category has never been included in these tabulations.

#### THE NUMBER OF VETERINARY GRADUATES SINCE 1942

At the end of the regular 1941-42 academic year, May and June, 1942, the 12 accredited veterinary colleges conferred degrees upon a total of 567 graduates. In slightly more than eighteen months from December, 1942, to January, 1944, inclusive, following the adoption of accelerated curriculums by the schools in the United States, the 12 schools have graduated a total of 1,003. In that period each school, with the exception of the two in Canada, graduated two full classes; special commencements were held for the conferring of degrees on a few students who completed their work at odd times.

The average number of graduates in veterinary medicine for five regular academic years prior to the accelerated program was 550.

Following in chronological order are the number of graduates for classes since the spring of 1942:

Dec. 23, 1942	Colorado State College	30
Jan. 22, 1943	Texas A. & M. College	63
Jan. 23, 1943	Kansas State College	46
Jan. 28, 1943	Cornell University	37
Feb. 26, 1943	Alabama Polytechnic Institute	53
Mar. 15, 1943	Michigan State College	51
Mar. 19, 1943	Iowa State College	59
Mar. 19, 1943	Ohio State University	58
Apr. 3, 1943	Pennsylvania, University of	49
May 14, 1943	Ontario Veterinary College	41
May 24, 1943	Washington, State College of	32
May, 1943	Montreal, University of	5
July 27, 1943	Kansas State College	54
Aug. 20, 1943	Colorado State College	30
Sept. 17, 1943	Texas A. & M. College	60
Oct. 17, 1943	Cornell University	37
Nov. 26, 1943	Alabama Polytechnic Institute	44
Dec. 17, 1943	Michigan State College	48
Dec. 17, 1943	Ohio State University	59
Dec. 18, 1943	Iowa State College	61
Dec. 22, 1943	Pennsylvania, University of	37
Jan. 31, 1944	Washington, State College of	37

Total 991

#### Special Commencements:

June 12, 1943	Michigan State College	4
Sept. 3, 1943	Michigan State College	3
Jan. 29, 1944	Texas A. & M. College	5 12

Grand Total 1003

## APPLICATIONS

The listing of applicants conforms to the requirements of the administrative by-laws—Article X, Section 2.

### First Listing

BROWN, W. J.

112 E. Mt. Airy Ave., Philadelphia 10, Pa.  
V.M.D., University of Pennsylvania, 1942.  
Vouchers: J. D. Beck and F. E. Lentz.

COX, HARRY B.

519 White Horse Pike, Audubon, N. J.  
D.V.S., American Veterinary College, 1895.  
Vouchers: F. H. Schneider and J. D. Beck.

DURRELL, W. B.

Box 181, Simcoe, Ont., Can.  
B.V.Sc., Ontario Veterinary College, 1942.  
Vouchers: C. A. Mitchell and A. C. Burt.

HESTER, K. J.

Station Veterinarian, Benicia Arsenal, Calif.  
D.V.M., Colorado State College, 1936.  
Vouchers: I. E. Newsom and R. F. Bourne.

HOYT, FREDERICK J.

Afton, N. Y.  
D.V.M., Cornell University, 1933.  
Vouchers: L. Juliard and A. H. McClelland.

JENSEN, RAY C.

2357 Lexington-Gallatin Rd., Rivera, Calif.  
D.V.M., Kansas State College, 1934.  
Vouchers: W. D. Odou and F. Keneley.

LINZINMEIER, CHARLES B.

Box 511, Chanute Field, Ill.  
D.V.M., Ohio State University, 1935.  
Vouchers: R. M. Madison and A. E. Campbell.

McFARLANE, A. M.

156 Winston Rd., St. James, Manitoba, Can.  
B.V.Sc., Ontario Veterinary College, 1915.  
Vouchers: R. H. Lay and J. W. Fasken.

MERSON, HOWARD M.

P. O. Box E, Linesville, Crawford Co., Pa.  
V.M.D., University of Pennsylvania, 1938.  
Vouchers: J. D. Beck and R. J. Maloney.

MITCHELL, FRANCIS S.

540 Second St., N.W., Carrollton, Ohio.  
D.V.M., Ohio State University, 1941.  
Vouchers: W. F. Guard and P. A. Soldner.

MOON, G. W.

Howard, Kansas.  
D.V.M., Kansas City Veterinary College, 1913.  
Vouchers: E. J. Frick and F. H. Oberst.

MORTON, JOHN A.

1801 Wilson Ave., Webster City, Iowa.  
D.V.M., Iowa State College, 1938.  
Vouchers: B. E. McCulloch and I. W. Moranville.

PHILIPS, GUY J.

108 N. Laurence St., Montgomery, Ala.  
D.V.M., Alabama Polytechnic Institute, 1911.  
Vouchers: I. S. McAdory and W. E. Cotton.

REINHARDT, WADE H.

Surgeon's Section, Hdqs. First Air Force,  
Mitchel Field, N. Y.



D.V.M., Alabama Polytechnic Institute, 1915.  
Vouchers: W. C. Schofield and J. H. Brown.

RILEY, G. A.

6207 Vine Vale Ave., Bell, Calif.

D.V.M., Kansas State College, 1916.

Vouchers: J. L. Tyler and L. B. Wolcott.

ROBERTS, CHARLES S.

Office of the Surg., Hq., U. S. Advance Base  
"A", APO 928—c/o P.M., San Francisco, Calif.

D.V.M., Alabama Polytechnic Institute, 1937.

Vouchers: F. P. Woolf and O. E. Jung, Jr.

ROUTZONG, VIRGIL W.

222 W. McClure Ave., Peoria, Ill.

D.V.M., Ohio State University, 1920.

Vouchers: M. J. Thomson and J. G. Hardenbergh.

SCHIRAG, O. J.

c/o Kuhn Packing Co., Muncie, Ind.

D.V.M., Iowa State College, 1926.

Vouchers: W. A. Sullivan and H. M. Hamilton.

SCRIBNER, L. A.

116 Bonnie Loch Court, P. O. Box 1823, Orlando, Fla.

D.V.M., Michigan State College, 1940.

Vouchers: J. L. Ruble and W. M. Lynn.

WALTERS, E. DOUGLAS

204 Maple St., Wyandotte, Mich.

D.V.M., Alabama Polytechnic Institute, 1937.

Vouchers: E. J. Waters and E. E. Patterson.

WEEKS, J. I.

Clinton, N. Car.

D.V.S., U. S. College of Veterinary Surgeons, 1913.

Vouchers: J. H. Brown and N. B. Tyler.

WEISZ, LEO

31 Point St., Natick, Mass.

D.V.M., Veterinary University, Vienna, 1913.

Vouchers: T. P. White and H. W. Jakeman.

WHEELIN, THOMAS J.

Station Veterinary Hosp., Fort Ord, Calif.

D.V.M., Ohio State University, 1937.

Vouchers: J. M. Arburua and C. M. Hamilton.

WOLF, JOSEPH D.

P. O. Box 2183, Hickory, N. Car.

D.V.S., Kansas City Veterinary College, 1909.

Vouchers: J. H. Brown and W. H. Kern.

## Second Listing

Addison, Joseph R., 55 Elizabeth St., Kingston, N. Y.

Chambers, Clive B., Heuvelton, N. Y.

Claire, Carl J., 15 Carlton Way, Tracy, Calif.

Heydecker, Louis F., 6708 U. S. Highway No. 69, Overland Park, Kansas.

Pfarr, Philip J., 212 Olsen St., Pullman, Wash.

Romine, M. J., 445 W. 70th St., Chicago 21, Ill.

Rostetter, G. A., Newton, Kans.

Sanders, Oral M., 1101 S. Johnston, Ada, Okla.

Stanley, George E., Blair, Neb.

Weight, Leslie A., 1911 Kalaniana'ole Dr., Hilo, Hawaii, T. H.

## 1943 Graduate Applicants

### First Listing

The following are graduates who have recently received their veterinary degrees and who have applied for AVMA membership under the provision granted in the Administrative By-Laws to members in good standing of junior chapters. Applications from this year's senior classes not received in time for listing this month will appear in later issues. An asterisk (\*) after the name of a school indicates that all of this year's graduates have made application for membership.

### Iowa State College

PRATT, DONALD W., D.V.M.

106 Hammond St., Red Oak, Iowa.

Vouchers: G. H. Conner and D. E. Jasper.

### Ohio State University

BUNKER, VON CLYDE, D.V.M.

5242 W. Washington Blvd., Los Angeles 16, Calif.

Vouchers: W. F. Guard and P. A. Soldner.

### Washington State College

ADAMS, CARROLL E., D.V.M.

P. O. Box 187, 501 Edison St., Olympia, Wash.

Vouchers: E. E. Wegner and J. E. McCoy.

BELL, LELAND JOSEPH, D.V.M.

Rt. 2—Box 26, Woodland, Calif.

Vouchers: G. J. Freiermuth and E. E. Wegner

BURKE, HENRY A., D.V.M.

5202 S. Puget Sound, Tacoma, Wash.

Vouchers: G. J. Freiermuth and E. E. Wegner.

LINDER, ERIC W., D.V.M.

1016 Boren Ave., Seattle, Wash.

Vouchers: E. E. Wegner and J. E. McCoy.

RYNCARZ, ALEXANDER J., D.V.M.

4507 S. Lawrence St., Tacoma, Wash.

Vouchers: N. G. Covington and E. E. Wegner.

TAYLOR, ERNEST S., D.V.M.

Box 203—Rt. No. 3, Yakima, Wash.

Vouchers: W. M. Thorning and E. E. Wegner.

WALKER, JOHNNIE DEE, D.V.M.

919 S. Manhattan Pl., Los Angeles, Calif.

Vouchers: G. J. Freiermuth and E. E. Wegner.

### Second Listing

### Colorado State College

Hoerlein, B. Franklin, D.V.M., Kansas City  
Quartermaster Depot, Kansas City Mo.

### Iowa State College

Baker, D. L., D.V.M., 517 4th St., Rockwell City, Iowa.

Bicek, Ernest K., D.V.M., 440 E. Craig Ave., Tracy, Minn.

Foley, Edward J., D.V.M., Cottonwood, Minn.

Hoyt, Robert H., D.V.M., Deer Creek, Minn.  
 Lynch, William M., D.V.M., Box 227, Lehigh, Iowa.  
 Moore, Maurice Jr., D.V.M., 162 Union Ave., Batavia, Ill.  
 Stoenner, Herbert G., D.V.M., c/o Mr. Ernst Stoenner, R.F.D. 1, Sibley, Mo.  
 Underbjerg, Gravers K. L., D.V.M., Veterinary Research Institute, Iowa State College, Ames, Iowa.  
 Vegors, Mason M., D.V.M., Webster City, Iowa.  
 Vollmar, Warren W., D.V.M., Montgomery, Minn.

### Michigan State College

Amsiejus, Julius, D.V.M., R.F.D. No. 1, Salem Rd., Pelham, N. H.  
 Ayres, Paul E., D.V.M., 2065 Lochmoor Blvd., Grosse Pointe Woods, Mich.  
 Brekke, Alfred E., D.V.M., R.F.D. No. 1, Wittenberg, Wis.  
 Broome, Alfred O., D.V.M., 7415 Keeler, Detroit 21, Mich.  
 Buchholz, Harvey H., D.V.M., Wilton, Wis.  
 Carr, Glenwood F., D.V.M., Metamora, Ohio.  
 Caswell, Donald E., D.V.M., 317 W Main, North Adams, Mich.  
 Chapman, John H., D.V.M., 512 Harvard Pl., Ontario, Calif.  
 Coohon, Donald B., D.V.M., 212 Jean Ave., Sturgis, Mich.  
 Cooper, Arthur W. D.V.M., 253 Rhode Island Ave., Highland Park 3, Mich.  
 Custer, Franklin D., D.V.M., R.F.D. No. 2, Oakland, Md.  
 Davenport, LeRoy, D.V.M., 770 Holly Ave., St. Paul, Minn.  
 Dibble, Gipson D., D.V.M., R.R. No. 3, Homer, Mich.  
 Engel, Victor F., D.V.M., 325 Main St., Frankenth, Mich.  
 Farnsworth, Lauriston B., D.V.M., Lakeview, Mich.  
 Hotchkiss, Philip M., D.V.M., Main St., Niantic, Conn.  
 Jehle, C. Jack, D.V.M., Grand Blanc, Mich.  
 Larson, Roy G., D.V.M., Box 675, Stambaugh, Mich.  
 Schiller, Alfred Geo., D.V.M., Irma, Wis.  
 Sharrard, Parker E., D.V.M., Chelsea, Mich.  
 Sterner, Edward F., D.V.M., Ionia, Mich.  
 Sullivan, David J., D.V.M., 13375 Terry Ave., Detroit 27, Mich.  
 Vigue, R. F., D.V.M., 45 Halifax St., Waterville, Maine.  
 Waterfall, Clark, D.V.M., 110 W. Jackson St., Columbia City, Ind.  
 Watson, L. B., D.V.M., RR No. 5, Box 16, Coldwater, Mich.  
 Webster, Harris D., D.V.M., 1800 Ray St., Lansing, Mich.  
 Wise, Gilbert H., D.V.M., 927 Colvin Ave., S.E., Grand Rapids, Mich.

### Ohio State University

Beardsley, David S., D.V.M., 249 Walnut St., Geneva, Ohio.  
 Becker, Paul Jr., D.V.M., Rt. No. 1, Defiance, Ohio.  
 Booher, Howard E., D.V.M., 530 Wood St., Piqua, Ohio.  
 Boyd, Waive O., D.V.M., R.F.D. No. 5, Millersburg, Ohio.  
 Brewer, James A., D.V.M., Rt. No. 2, Fairmount, Ind.  
 Catcott, Earl J. D.V.M., Veterinary Lab., Ohio State University, Columbus, Ohio.  
 Cates, John P., D.V.M., Modoc, Ind.  
 Chadwick, Ralph D., D.V.M., 1011 W. Main St., Crawfordsville, Ind.  
 Cornett, Harry D., D.V.M., Morrow, Ohio.  
 Danis, John E., D.V.M., 3013 Clark Ave., Cleveland, Ohio.  
 Diesem, Charles D., D.V.M., 328 N. Market St., Galion, Ohio.  
 Dixon, George F., D.V.M., 125 N. Main St., St. Marys, Ohio.  
 Elliott, Herbert B., D.V.M., West Mansfield, Ohio.  
 Enderle, Wayne W., D.V.M., Huron, Ohio.  
 Erdmann, Arden, D.V.M., 8241 Kilpatrick Ave., Skokie, Ill.  
 Evans, Ralph W., D.V.M., R.F.D. No. 1, Creston, Ohio.  
 Farmer, J. Hudson, D.V.M., Rt. No. 1, Buechel, Ky.  
 Fireoved, Ralph, D.V.M., Mendon, Ohio.  
 Fisher, Robert I., D.V.M., Rt. No. 1, Chesterland, Ohio.  
 Folsom, Robert H., D.V.M., 55 E. Woodruff Ave., Columbus, Ohio.  
 Glass, Howard, D.V.M., 740 N. Limestone St., Springfield, Ohio.  
 Green, Lawrence E., D.V.M., Box 27, Shady-side, Ohio.  
 Greenlee, Allan M., D.V.M., 1522½ N. Fourth St., Columbus 1, Ohio.  
 Grossman, Richard W., D.V.M., 302 N. Main St., Mt. Vernon, Ohio.  
 Hansberger, Charles H., D.V.M., R.F.D. No. 1, Millersport, Ohio.  
 Hopping, J. L. Jr., D.V.M., 1035 Marietta St., Atlanta, Ga.  
 Jacobs, Harold D. Jr., D.V.M., 663 Riddle Rd., Cincinnati, Ohio.  
 Jones, David O., D.V.M., 1302 Fry Ave., Lakewood, Ohio.  
 Kocher, Ralph, D.V.M., Rt. No. 2, Lancaster, Ohio.  
 Lantis, Geo. W. Jr., D.V.M., 537½ Locust St., Quincy, Ill.  
 Little, Paul, D.V.M., 604 E. Washington St., Greensburg, Ind.  
 Lloyd, Kenneth E., D.V.M., Cedarburg, Wis.  
 McBride, Dwight M., D.V.M., Rt. No. 3, Bucyrus, Ohio.  
 McKee, James O., D.V.M., LaCenter, Ky.

- MacDonald, D. George, D.V.M., 2692 Knox St., Gary, Ind.
- Miller, Chas. W., D.V.M., 201 Columbus St., Crestline, Ohio.
- Moore, John F., D.V.M., R.R. No. 3, Box 325, Cincinnati, Ohio.
- Moore, John W., D.V.M., c/o American Presbyterian Bd. of Foreign Missions, India Office, 156 Fifth Ave., New York, N. Y.
- Nickell, Vernie L., D.V.M., 538 S. Maple, Winchester, Ky.
- Olds, Durward, D.V.M., 568 Middle Rd., Conneaut, Ohio.
- Pleasant, George E., D.V.M., 641 N. Main St., Kenton, Ohio.
- Ranck, Wesley A., D.V.M., 2363½ N. High St., Columbus, Ohio.
- Reinhart, Richard A., D.V.M., 500 Nashoba Ave., Columbus 4, Ohio.
- Rodabaugh, Edwin R., D.V.M., Williamstown, Ohio.
- Rudy, Richard L., D.V.M., Pleasant Hill, Ohio.
- Sachs, Sherman, D.V.M., 172 W. Lane Ave., Columbus, Ohio.
- Saunders, E. C., D.V.M., c/o Dr. W. G. Saunders, 7742 Aberdeen St., Chicago, Ill.
- Schnurrenberger, LeRoy W., D.V.M., 5481 Mahoning Ave., Youngstown, Ohio.
- Shotton, James B., D.V.M., Box 703, Winter Haven, Fla.
- Spidmore, Merritt, D.V.M., West Mansfield, Ohio.
- Starr, Hugh S., D.V.M., 2602 Neil Ave., Columbus 2, Ohio.
- Stockton, Jack J., D.V.M., St. Paris, Ohio.
- Taylor, Warren J., D.V.M., R.R. No. 1, Xenia, Ohio.
- Walker, James M., D.V.M., Warsaw, Ohio.
- Wallman, Harold, D.V.M., 5220 Kimbark Ave., Chicago 15, Ill.
- Wenner, Harold R., D.V.M., Carey, Ohio.
- Worley, Raymond W., D.V.M., 2034 N. High St., Columbus, Ohio.
- Ferrucci, Vitt P., D.V.M., 9145 7th Ave., S., Seattle 8, Wash.
- Fortmann, Eberhard A., D.V.M., R.R. No. 3, Pullman, Wash.
- Garlick, Gordon K., D.V.M., 509 Jordan Rd., Pullman, Wash.
- Gaw, LaMar H., D.V.M., 7756 19 N.E., Seattle, Wash.
- Geierman, Joseph L., D.V.M., Patton State Hosp., Patton, Calif.
- Hansell, William H., D.V.M., Athens, Ore.
- Hardesty, Jack E., D.V.M., Spangle, Wash.
- Hare, Carroll L. Jr., D.V.M., 1211 Warren St., San Fernando, Calif.
- Hatfield, Doreen, D.V.M., Rt. 3, Box 2760, Renton, Wash.
- Hayward, Charles W., D.V.M., 607 W. Sinto, Spokane, Wash.
- Herbert, Earl W., D.V.M., R.F.D. No. 6, Spokane, Wash.
- Kovach, Florian M., D.V.M., 828 E. 60 St., Tacoma, Wash.
- Krebs, Walter J., D.V.M., 102 W. Crockett St., Seattle, Wash.
- Osebold, John W., D.V.M., 90 Cumberland St., San Francisco, Calif.
- Pinckney, Bernard R., D.V.M., Sunnyside Acres, Hoquiam, Wash.
- Rhoades, Mervin G., D.V.M., 801 S. Granercy Dr., Los Angeles, Calif.
- Shumaker, Chas. W., D.V.M., P. O. Box 683, Kirkland, Wash.
- Vernon, Raymund G., D.V.M., 511 Campus Ave., Pullman, Wash.
- Walden, Richard T., D.V.M., Box 581, Avenal, Calif.
- Wallace, Leighton E., D.V.M., Rt. No. 1, Snohomish, Wash.
- Zimmerman, James A. Jr., D.V.M., 1720 "A" St., Pullman, Wash.

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## COMMENCEMENTS

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### Michigan State College

Special commencement exercises were held for the second graduating class in Veterinary Medicine for the year 1943. The following students, presented by Dean Ward Giltner, received the degree of Doctor of Veterinary Medicine on December 17, 1943:

- Aasen, Stephen W., D.V.M., Marshfield, Ore.
- Ament, Roland W., D.V.M., 104 Columbus St., Pullman, Wash.
- Andrist, Charles G., D.V.M., 2711 E. Rowan Ave., Spokane, Wash.
- Clarke, William J. Jr., D.V.M., 601 Campus Apt. No. 3, Pullman, Wash.
- Cooper, Harvey R., D.V.M., 611 Linden, Winthrop, Wash.
- Dodge, John R., D.V.M., 209 E. 12 St., Olympia, Wash.
- DuBois, Howard S., D.V.M., Rt. No. 2, Box 1882, Kent, Wash.
- Ewing, William J., D.V.M., Midway Apts. No. 8, Pullman, Wash.

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|---------------------|-----------------------|
| Amsiejus, Julius W. | Caswell, Donald E.    |
| Ayres, Paul E.      | Chapman, John H.      |
| Bailey, Robert W.   | Cheng, Ching T.       |
| Bell, James A.      | Colby, John M.        |
| Bennett, George R.  | Coochen, Donald B.    |
| Brekke, Alfred E.   | Cooper, Arthur R.     |
| Broome, Alfred O.   | **Custer, Franklin D. |
| Buchholz, Harvey H. | Davenport, LeRoy      |
| Carr, Glenwood F.   | Dibble, Glipson D.    |



\*Drudge, Junior H.  
Engel, Victor F.  
Farnsworth, L. B.  
Garling, John W.  
Goodband, George C.  
Grossman, Samuel M.  
Haidy, Norman  
Hotchkiss, P. M.  
Jehle, Charles J.  
Larson, Arthur S.  
Larson, Roy G.  
\*\*List, Edward M.  
Mayne, Robert F.  
McCarty, Gailard T.  
Merriman, George M.

\*\*Nichols, William J.  
Propp, George J.  
Schaub, Richard E.  
\*\*Schiller, Alfred G.  
Seidl, Roger P.  
\*\*Sharrard, Parker E.  
Shull, Albert J.  
Sternner, Edward F.  
Stuewer, George H.  
Sullivan, David J.  
Vigue, R. Frank  
Waterfall, Clark  
Watson, Lawrence B.  
\*Webster, Harris D.  
\*Wise, Gilbert H.

The following students received the Degree of Doctor of Veterinary Medicine on June 12, 1943:

Green, Merlin J.                      Smith, Jess W.  
Kuenster, Julius L.                Westcott, William J.

The following students received the Degree of Doctor of Veterinary Medicine on September 3, 1943:

Davidson, George W.                Stahl, Charles H.  
Freier, George G.

\*With high honors. \*\*With honors.

### Texas A. & M. College

The commencement exercises for Texas A. & M. College were held on Jan. 29, 1944. The following men were graduated with the degree of Doctor of Veterinary Medicine:

Anderson, Guy R.                      Saunders, Dan H.  
Fischer, George W.                    Smith, Harold R.  
Johnson, Stephen N.

## U. S. GOVERNMENT

### Army

**Honorable Discharge for War Dogs**—Honorable discharge certificates are being issued for all dogs of the K-9 Corps, returned to civil life. The document reads: "The War Dog . . . . ., Tattoo No. . . . ., having served with the Armed Forces of the United States, is hereby awarded this certificate of faithful service and honorable discharge."

The Army releases certain dogs from time to time, owing to changing conditions which alter the need for certain types. The Coast Guard, for example, is eliminating a large number of beach patrol dogs inasmuch as the Battle of the Atlantic is in a new phase and fewer war dogs are needed as sentries in black-out areas.—*W. D. Bureau of Public Relations, Jan. 15-31, 1944.*

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**Public Hearing on Anti-Hog-Cholera Serum.**—A public hearing was held in Washington

Jan. 24, 1944, to receive further evidence concerning the handling of anti-hog-cholera serum and hog-cholera virus. It was the continuation of a similar meeting held in Chicago in April 1940. The amendments drafted by the serum industry were acted upon in a manner favorable to all concerned. The making of a marketing agreement by the serum industry was authorized by Congress Aug. 24, 1935.

## AMONG THE STATES

### Alabama

**Conference for Veterinarians.**—The annual Conference for Veterinarians sponsored by the School of Veterinary Medicine, Alabama Polytechnic Institute, was held at Auburn, February 8-10. The state association held a meeting in conjunction with the conference. Among the speakers announced are Col. D. M. Campbell, V.C., A.U.S. retired, editor of *Veterinary Medicine*; W. F. Guard, professor of veterinary surgery, Ohio State University; President Charles W. Bower of the AVMA; Dean R. S. Sugg (Lt. Col., V.C., A.U.S.), chief of the veterinary service at Camp Shelby, Miss.; S. R. Damon, M.D., of the Montgomery Health Department; President J. M. Sutton of the United States Live Stock Sanitary Association; R. E. Jackson, BAI inspector-in-charge in Alabama; Acting Director H. N. Johnson of the rabies laboratory, Rockefeller Foundation, Montgomery; State Veterinarian I. S. McAdory of Alabama; Director B. T. Simms of the Regional Research Laboratory, USDA, at Auburn; W. E. Cotton, and other members of the API faculty. The program included clinics and lectures on large and small animals.—*From A.P.I. News Bureau.*

### Arizona

**State Association.**—The semiannual meeting of 1943 was held in the Maricopa County Agricultural Building at Phoenix, December 8. The meeting brought in veterinarians from various parts of the state, New Mexico, and local army posts. The officers elected for 1943-1944 were: Donald Miller, Phoenix, *president*; R. J. Hight, Tempe, *president-elect*; and Vego Mikkelsen, Phoenix, *secretary-treasurer*. On the program were:

**Vego Mikkelsen, State Veterinarian, Phoenix:** "Brucellosis and Measures for its Control," and "Sulfa Drugs in Large Animals."

**J. C. Norton, former Territorial Veterinarian, Phoenix:** "Early Veterinary History."

**C. T. Guilfoyle, Phoenix:** "Mastitis: Methods of Treatment and Control."

The Association announced its support of the state veterinarian's program for restricting the movement of Brucella-infected cattle within the

state. The next meeting will be held in March (1944), in conjunction with the Arizona Public Health Association:

s/DONALD MILLER, *Resident Secretary.*

### Illinois

**Meeting of State and County Veterinarians.**—At the annual meeting of State Employed and County Veterinarians held in Springfield, January 15, a technical program on tuberculosis and brucellosis was carried out following greetings by Director Leonard of the Department of Agriculture.

**Vernon Lyons:** "The Tuberculous Herd and Method of Eradication."

**R. H. Smith:** "The Relation of 'No-Lesion' Tuberculosis to Poultry and Swine."

**A. K. Kuttler,** U. S. Bureau of Animal Industry: *Ibid.*

**M. J. Huggins:** "The Problem (Tuberculous) Herd."

**W. J. McIntosh:** "The Veterinarian's Technique."

**C. E. Fidler,** Chief Veterinarian: "Progress Report on Bang's Disease Control."

**J. H. Brown, Jr.,** County Veterinarian, La Salle County: "Area and Combination, T.B. and Bang's Testing."

**George A. Fox,** Superintendent, Division of Livestock Industry: "Department Regulation."

The guest speaker at the banquet was **W. E. Peterson,** Professor of Dairy Husbandry, University of Minnesota, who spoke on mastitis control.

**Chicago Veterinary Medical Association.**—The Chicago Association held its regular monthly meeting Feb. 8, 1944, at the Palmer House. Mr. Bob Becker of the *Chicago Tribune* addressed the meeting on the subject: "Public Relations for the Veterinarian."

The new president, Dr. O. N. Christensen of Wilmette, has made the following offers to all the members: to every veterinarian who attends seven of the next ten meetings, he will give a copy of the book, "Dutch Vet."; all of the members who have 100 per cent attendance for the next ten meetings will be treated by Dr. Christensen to a *sill frukost* (herring breakfast) at the Swedish Club. Those are goals for which all of the members can shoot and thereby show our president we are backing him 100 per cent.

s/ W. A. YOUNG, *Secretary-Treasurer.*

**Important Medical Congress.**—The fortieth annual Congress of Medical Education and Licensure met at the Palmer House, Chicago, Feb. 14-15, 1944. Wartime, postwar, public health, licensure, and educational problems

were presented by prominent figures of the medical profession, among whom were Surgeon General Parran of the United States Public Health Service, Deputy Surgeon General Lull of the United States Army, and Rear Admiral McIntire of the United States Navy. Of special interest to the veterinary profession at this time was the annual report of the Federation of State Medical Boards of the United States, presented by the president of that organization.

**McLean County Association.**—The onetime McLean County association, which was perhaps the first local association of veterinarians in the Middlewest was revived when a meeting was held at the hospital of H. T. Clarno in Bloomington, Jan. 30, 1944. The first McLean County society expanded into or had merged with the Central Illinois Veterinary Medical Association with jurisdiction around the state capital. At the revival meeting L. N. Morin, of Clinton was chosen president, and H. T. Clarno, 1101 S. Main street, Bloomington, secretary-treasurer. The McLean County rebirth recalls such names as Welch, Natress, Martin, Tiffany, Allerton, the Kyles, and other pioneers of central Illinois back in the nineteenth century. It was certainly here that surgical clinics became a feature of local association work, and it is to be remembered that choosing this place for developing the now famous "McLean County System of Ascaris Control" was not an accident. The government went where local veterinarians knew a lot about their big problems.

**"4-F" Dogs Not Wanted.**—At the annual meeting of the I.S.V.M.A. at Springfield in January, Major C. D. Barrett, in charge of the K9 Corps reception center at Fort Robinson, Nebr., warned veterinarians against vouching for dogs of the "4-F" class. "Quality is now more important than quantity," the Major announced. The preference goes to cross-bred dogs of the old watchdog type. Among the purebreds, farm Collies, German Shepherds, and Dobermans rate highest. The training of war dogs has shown that there is no "master race," the association was told.—*Excerpt from the Dekalb (Ill.) Chronicle.*

**State Association.**—The newspapers of the state widely published the recommendation of the I.S.V.M.A. at its January meeting urging that a formal veterinary curriculum be established at the state university. The resolution recommending legislation to provide state milk and meat inspection also attracted the attention of the press.

The following officers were elected: L. A. Gray, Bushnell, *President*; J. V. Lacroix, Evanston, *vice-president*; C. C. Hastings, Wil-

Ilamsville, *secretary-treasurer*; H. R. Hornbacker, Galesburg, *executive board member*; W. C. Glenney, Elgin, *AVMA resident secretary*.

The Ladies Auxiliary elected Mrs. A. C. Merrick, Brookfield, *president*; Mrs. R. W. Grossman, Columbia, *vice-president*; Mrs. L. A. Dykstra, Galesburg, *secretary*; Mrs. R. W. Merriam, Springfield, *treasurer*.

• • •

At the annual meeting of the American Milk Goat Record Association held at the Morrison Hotel, Chicago, in October, Dr. A. J. Durant, head of veterinary science, University of Missouri and prominent figure of the veterinary profession was the presiding officer and he was reelected by an overwhelming majority. The AMGRA elects its president by proxies of the whole membership. Of the 181 scattered proxies, Dr. Durant received 118 without any near competitor. Detailed report of the meeting (*The Goat World*, January, 1944) shows that in President Durant the dairy goat industry has a wise promoter. His work in attempting to bring the milk goat industry of the United States under the direction of a consolidated national society is outstanding.

## Indiana

**State Association.**—The 60th annual convention of the Indiana Veterinary Medical Association was held at Indianapolis, Jan. 11-13, 1944, E. S. Hinkle presiding. The guest speakers were: Lt. Col. O. C. Schwalm, V.C., U.S.A., Fort Benjamin Harrison; Randolph Core, member of the state livestock sanitary board; W. E. Petersen, professor of dairy husbandry, University of Minnesota; A. G. Madden Jr., practitioner, Madeira, Ohio; J. V. LaCroix, treasurer of the AVMA, Evanston, Ill.; C. S. Bryan, Michigan State College, East Lansing; A. H. Quin, Jensen-Salsbery Laboratories, Kansas City, Mo.; J. E. Peterman, BAI inspector, Lincoln, Nebr.; R. E. Rebrassier, parasitologist, College of Veterinary Medicine, Ohio State University; and C. W. Bower, Topeka, Kans., president of the AVMA.

Officers elected were: John E. Carrico, Bicknell, *president*; T. L. Steenerson, Wilkinson, *vice president*; H. A. Lidikay, Darlington, *secretary*; and Charles C. Dobson, and G. M. Wagaman, *directors*. Frank Brown, Indianapolis, was chosen *delegate* to the House of Representatives of the AVMA and J. E. Tinder, Brook, *alternate*.

## Iowa

**East Central Association.**—The East Central Veterinary Medical Association held its regular meeting Feb. 10, 1944 in Iowa City. Vice President R. J. Beamer turned the meeting over to F. J. Crow, chairman of the program committee. The following program was presented:

John B. Bryant, Mount Vernon: "The Physiology of Calf Digestion in Relation to Calf Scours."

A. R. Stephenson, Bennett: "Treatment of Calf Scours."

R. J. Beamer, Iowa City: "Use of Sulfa Drugs in Calf Scours."

J. A. Barger, inspector in charge, Des Moines, spoke on the subject: "Calfhood Vaccination in the Control of Bang's Disease."

Case reports on Caesarian section and extrauterine pregnancy in cattle were given by Darrell T. White of Williamsburg and A. R. Menary of Cedar Rapids.

s/M. C. LARSON, *Secretary-Treasurer*.

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**Cedar County Society.**—Twenty-six veterinarians from nine counties participated in a poultry clinic at West Liberty, February 4, under the direction of Drs. C. D. Lee and Alva Howard, of Iowa State College who also gave a comprehensive discourse on poultry diseases in general and on infectious diseases of poultry with special reference to pneumoencephalitis, blue comb, fowl paralysis, and avitaminosis. Drs. A. R. Stephenson, C. H. Banks, and I. W. Moranville were in charge of arrangements.

s/ GRANT MUNGER.

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**Central Iowa Association.**—Forty-two members from fourteen counties met at Hotel Montrose, Cedar Rapids, Jan. 13, 1944 to hold the regular monthly dinner session. A program of talks, papers and discussions on stated subjects was carried out as follows:

R. M. Hofferdt, Cedar Rapids: "The diagnosis of infectious diseases of swine."

L. Proctor, Hazelton: "Case reports on the use of phenothiazine in pigs."

A. R. Menary, of Cedar Rapids: "The vaccination of pregnant sows."

These topics were widely discussed by J. W. Giffey, C. H. Banks, F. J. Crow, J. B. Bryant, C. L. Crider, J. W. Griffith, L. W. Kellogg, S. G. Paul, J. C. Glenn, J. W. Carey, G. O. Shipley, and others.

The Executive Board of the Eastern Iowa association set the date of its thirty-first annual meeting at Oct. 10-11, 1944 and the place, Hotel Montrose, Cedar Rapids. The president, R. E. Elson announced the appointment of C. L. Moles and H. L. McCrillis as chairmen of the Policy and Advisory committees, respectively. The appointment of a news reporter at each county seat of the region, charged with reporting accidents, sickness, deaths, etc., of members promptly to a central agency was approved.

s/M. C. LARSON, *Secretary*.

## Kentucky

**Central Kentucky Association.**—The annual meeting was held the evening of January 27 at



the Lafayette in Lexington. The officers elected were Arthur Kay, Frankfort, *president*; W. R. McGee, Lexington, *vice-president*; and E. F. Pile, Lexington, *secretary-treasurer*. The guest speaker was Dr. Charles D. Caywood, of the local public health service. Pending legislation pertaining to veterinarians was discussed at the dinner session.

s/E. F. PILE, *Secretary-Treasurer*.

## Maine

**State Association.**—The regular business meeting and banquet of the M.V.M.A. was held in Augusta, January 12. The literary program listed the following:

Joseph B. McClusky, State Department of Health and Welfare: Illustrated Talk on Human Health Problems in Maine."

P. R. Baird, Waterville: "A Practitioner's Report on the U. S. Livestock Sanitary Association Meetings in Chicago."

C. E. Dutton, Saco: "New Advances in Small Animal Surgery During the Past Year."

J. A. Elliott, Bangor: "The Uses of Stilbestrol in Veterinary Medicine."

R. E. Ingham, Waterville: "The Control of Foot Rot in Cattle."

Symposiums on Mastitis:

G. M. Potter, Portland: "Etiology."

Ray Larcom, Kittery: "Comparison of Udder Infusion Treatments."

L. B. Denton, Dover-Foxcroft: "The Relation of Management to Control."

s/J. F. WITTER, *Secretary-Treasurer*.

## Massachusetts

**State Association.**—The annual meeting of 1944 was held at the Hotel Vendome, Boston, January 26. Action was taken on the series of radio broadcasts to be sponsored by the Association during the year. The principal feature of the technical program was a paper entitled "Virus Diseases Affecting the Central Nervous System," by Dr. Charles A. Janeway, assistant professor of pediatrics, Children's Hospital, Boston. Committee reports on questions of local and general interests were presented.

s/H. W. JAKEMAN, *Secretary*.

## Michigan

**Post-Graduate Conference for Veterinarians.**—The twenty-first annual conference for veterinarians, comprising short courses, special courses, and conferences, was held at Michigan State College, Jan. 25-28, 1944. The guest teachers listed on the curriculum were W. L. Boyd, University of Minnesota; James Farquharson, Colorado State College, president-elect, Amer-

ican Veterinary Medical Association; E. R. Frank, Division of Veterinary Medicine, Kansas State College; L. M. Hutchings, Purdue University; C. O. Prickett, Regional Poultry Research Laboratory, East Lansing; Col. Louis L. Shook, V.C., U.S.A., Chicago, Ill.; and C. Harvey Smith, practitioner, Crown Point, Ind. Among the resident teachers were Bennett, Mallman, Sholl, Bryan, Stafseth, Darby, Neuman, Sales, Hutton, Clark, Cunkelman, Hawkins, Cole, Huffmann, Rasmussen, Schaible, Ruhland, Erickson, Hamann, Runnells, Thorp and Sholl.

The highlights of the course were summarized by Dean Ward Giltner, Division of Veterinary Science, Michigan State College. Attendance was approximately three hundred.

## Missouri

**K.C.V.C. Alumni Quarterly.**—This quarterly periodical has developed into a sixteen-page journal, full of fascinating news well presented. The December (1943) issue has a front-cover picture of a famous alumnus—Chief Arthur W. Miller ('01), of the U. S. Bureau of Animal Industry with a brief biographical sketch, and within is a picture of Richard F. Bourne ('06), professor of physiology, Colorado State College, associated with a report of the honor conferred upon him by members of the alumni association at the annual meeting of the Eastern Iowa association in October. The editor, vice the lamented A. T. Kinsley, is Charles D. Folse, of the Curts-Folse Laboratories, Kansas City, Kans., son-in-law of SESCO Stewart, prominent figure in the development of the veterinary service of the United States.

## Nebraska

**State Association.**—At the 1943 annual meeting held at David City, Dec. 15-16, 1943, a resolution was passed authorizing the treasurer to purchase \$5,000 worth of War Bonds. Another resolution endorsing the plan of controlling cattle grub, advocated by the National Live Stock Loss Prevention Board, was also passed. The latter resolution points out that hides damaged by grubs are reported by some packers to run as high as 61.9 per cent at a loss of more than 50 million dollars annually.

## Nevada

**State Association.**—The annual meeting of the Nevada Veterinary Medical Association was held at the University of Nevada, Reno, Jan. 28, 1944. Dr. William R. Smith, in his presidential address, discussed the present situation of veterinary medicine in Nevada and postwar planning. Discussion followed.

Talks were made by Dr. L. R. Vawter, Department of Veterinary Science, University of

Nevada, on mastitis and Dr. S. H. Still, inspector in charge, U. S. Bureau of Animal Industry for Nevada, on the status of brucellosis in the state.

The annual dinner was held at Hotel El Cortez. During the evening, Dr. W. F. Fisher, U. S. Bureau of Animal Industry, showed two motion pictures of wild life in Nevada, one covering deer and one sagehen.

Dr. L. R. Vawter and Captain I. C. McDonald, V. C., U. S. Army, discussed cases of acute infectious equine anemia, presenting kodachrome pictures and clinical charts illustrating the complete course of the disease.

The officers for the ensuing year are: *president*, H. A. Reagor, Reno; *vice president*, S. H. Still, Reno; *secretary*, (re-elected) Warren B. Earl, Reno.

s/ WARREN B. EARL, *Secretary*.

### New Mexico

**State Association.**—The 1943 annual meeting convened at El Fidel Hotel in Albuquerque, December 10-11. Officers elected: L. E. Patten, USBAI, Albuquerque, *president*; T. I. Means, Santa Fe, *vice-president*; Glen S. Holden, Albuquerque, *secretary-treasurer*. Plans were laid for carrying out radio broadcasts the second and third weeks of each month during the year.

s/GLAN S. BOLTON, *Secretary*.

### New York

**New York City Association.**—The regular meeting of the Veterinary Medical Association of New York City, Inc., was held in the Hotel New Yorker, Feb. 2, 1944.

The meeting was called to order by Dr. Finkelstein, the president.

Charles A. Bower, Topeka, Kans., president of the A.V.M.A., spoke on "Our Obligation to Human Welfare."

A kodachrome film on Rocky Mountain spotted fever vaccine was shown.

A. A. Livingston, H. A. Lutvack, A. Muskovin, J. H. Reisman, and J. R. Sterling were elected to membership.

The secretary was instructed to send a letter to Matthew A. Byrne, secretary of the Department of Health of New York City, stating that the amendment to the sanitary code of the Department of Health, which was read at the meeting, was impractical if not impossible of execution, and further, that it will not aid in the prevention of the spread of rabies, and that a committee of three members of this association, to be appointed by the president, should meet with the Department of Health to review the program and make recommendations.

### North Carolina

**Conference for Veterinarians.**—The sixth Conference for Veterinarians was held at State

College, Raleigh, Jan. 25-28, 1944. A program covering the field of veterinary medicine was carried out. The guest speakers were:

R. A. McIntosh, Professor of Surgery, Ontario Veterinary College, Guelph, Ont.

D. F. Green, Merck and Company, Rahway, New Jersey.

D. A. Sanders, College of Agriculture, Gainesville, Fla.

W. M. Coffee, General Practitioner, La Center, Ky.

J. G. Hardenbergh, Executive Secretary, American Veterinary Medical Association, Chicago, Ill.

George H. Hopson, De Laval Separator Company, New York, N. Y.

W. M. Roberts, Associate in Animal Industry, Dairy Manufacturing, North Carolina Agricultural Experiment Station, Raleigh.

R. E. Comstock, Associate in Animal Industry, Geneticist, North Carolina Agricultural Experiment Station, Raleigh.

W. L. Clevenger, Professor of Dairy Manufacturing, North Carolina State College, Raleigh.

W. J. Peterson, Associate in Animal Industry, Nutritionist, North Carolina Experiment Station, Raleigh.

R. O. Biltz, E. W. Squibb & Co.

D. S. Coltrane, Assistant to North Carolina Commissioner of Agriculture.

E. W. Constable, Chemist, North Carolina Department of Agriculture.

L. E. Starr, Practitioner, Roanoke, Va.

J. A. Campbell, Veterinary Surgeon, Toronto, Canada.

T. C. Jones, Major, Veterinary Corps, Veterinary Research Laboratory, Front Royal Q. M. Depot (Remount), Front Royal, Va.

The Conference Committeemen were: A. A. Busman, L. J. Faulhaber and C. D. Grinnells. Meetings of the state association and of the state Procurement and Assignment Committee were also held.

s/J. H. BROWN, *Secretary*, N.C.V.M.A.

### North Dakota

**State Association.**—The thirty-ninth annual meeting of the N.D.V.M.A. was convened at Fargo, Jan. 13-14, 1944, President R. S. Long in the chair. The officers elected were J. O'Connor, West Hope, *president*; C. L. Johnson, Harvey, *vice-president*; J. O. Foss, Fargo, *secretary-treasurer*. President Frank E. Eversull, North Dakota Agricultural College was the guest speaker at the banquet and G. H. Marshfield, South Dakota State College, Brookings was one of the contributors to the technical

program, presenting the subject of "Diseases of Feedlot Lambs." Resident contributors were:

J. H. Longwell, N. Dak. Agricultural College: "Nutrition in Cattle."

R. E. Shigley, Minot: "Disease and Sterility of Cattle."

D. K. Christian, N. Fargo: "Shipping fever in Feeder Cattle."

James V. Miles, Ellendale: "Nutrition and Disease Control in Swine."

E. M. Watson, M.D., City Health Officer, Fargo: "Public Health and the Veterinarian."

D. F. Eveleth, Professor of Veterinary Science, N. Dak. Agricultural College, Fargo: "John's Disease."

Fred C. Driver, BAI Inspector-in-Charge, Bismarck: "The Bureau of Animal Industry."

T. O. Brandenburg, C. H. Hofstrand, L. A. Benson, and R. E. Shigley discussed "Diseases of Cattle and Sheep."

s/T. O. BRANDENBURG, *Resident Secretary.*

## Ontario

**Provincial Association.**—The Ontario Veterinary Association was founded in 1874 and incorporated in 1879. Except for the AVMA which dates back to 1863, it is the oldest of the North American veterinary societies. The seventieth annual meeting was held at The Royal York Hotel, Toronto, Jan. 27-28, 1944. The president for 1943 was H. J. Davis, Aylmer, and the secretary-treasurer (acting), H. S. MacDonald, Toronto. The technical program as indicated on the printed announcement is as follows:

W. E. Swales, MacDonald College, Ste. Anne de Bellevue, Que.: "Parasitic Diseases of Sheep in Eastern Ontario."

J. Raymond Currey, Washington, D. C.: "Wartime Small Animal Practice."

Ronald Gwatkin, Animal Research Institute, Hull, Que.: "Gastroenteritis in Swine."

G. A. Edge, Health of Animals Branch, Toronto: "Observations of a Meat Inspector."

C. E. Phillips, Ontario Veterinary College, Guelph: "Hemorrhagic Septicemia in Swine."

L. D. Frederick, Swift & Company, Chicago: "Wartime Feeding of Dogs."

H. W. Lucas, University of Toronto: "Detection of Drugs in the Saliva of Horses."

F. J. Cote, Guelph: "Rape Poisoning."

James Farquharson, President Elect, AVMA., Fort Collins, Colo.: "Surgery in Large Animals (Illustrated)."

E. E. Ballantyne, Toronto: "Gas Gangrene."

## Texas

Texas Veterinary Bulletin for December (1943) publishes the highlights of the year from which we glean the following:

T. O. Booth, state veterinarian resigned to

reënter the army. [Booth was division veterinarian of the 36th Division, A.E.F., of 1918 with the rank of major.] . . . Six new members of the Veterinary Examining Board were announced in May. . . . The State Senate Investigating Committee reported on the "diseased meat killing." . . . The plan of the Farmer's Coöperative Association to establish contract veterinary service (in counties) is described in detail, under the headline "Will you sign this?" The editor of this association journal is State Veterinarian E. A. Grist, Fort Worth.

## Vermont

**State Association.**—The winter meeting was held at The Tavern in Montpelier, Jan. 15, 1944. The existing officers were reelected by acclamation. On the program were:

N. N. Allen, University of Vermont: "Mastitis and the Practitioner."

M. Frayer, University of Vermont: "Laboratory Diagnosis of Mastitis."

Resolutions recommending the founding of a milk and pathology laboratory for aiding in the control of mastitis were adopted.

s/G. N. WELCH, *Secretary.*

\* \* \*

G. N. Welch (Ont. '03), Northfield, and Mrs. Welch are enjoying a long vacation at St. Petersburg, Fla., "To escape the snow drifts," the Doctor adds.

## Virginia

**State Association.**—The annual meeting held in Richmond, January 12-13, was attended by ninety-nine members. Hon. Colgate W. Darden, Jr., governor of Virginia; Hon. William M. Tuck, lieutenant governor, and Hon. Thomas B. Stanley, speaker of the House of Representatives were guests at the banquet. Hon. L. M. Walker, commissioner of agriculture addressed the diners on the local livestock-feed situation. Guest speakers of the meeting were Otto Stader, Ardmore, Pa.; Capt. G. B. Schnelle, V.C., A.U.S.; and I. F. Huddleson, Central Brucella Station, Michigan State College, who spoke respectively on "Distemperoid Virus," "Problems in Canine Medicine," and "Immunity in Brucellosis." The local speakers were:

J. P. McDonough, Richmond: "Care and Management of Brood Mares."

R. D. Hatch, Virginia Polytechnic Institute: "Diseases of Feeder Cattle."

I. D. Wilson, *ibid.*: "Report of Procurement and Assignment Committee."

W. L. Threlkeld, Virginia Agricultural Experiment Station: "Chalbertia Ovina of Sheep and Ostertagia Ostertagi of Cattle," illustrated.

A. D. Pratt, *ibid.*: "Mineral Deficiencies with Emphasis on Rickets."

s/E. P. JOHNSON, *Resident Secretary.*



**Wisconsin**

**State Association.**—The winter meeting of the Wisconsin Veterinary Medical Association was held at Fond du Lac, January 6-7. Officers elected were: L. T. Donovan, Waupun, *president*; A. P. Lien, Stanley, *vice-president*; W. L. Richards, Morrisonville, *treasurer*; B. A. Beach, *secretary*. The four papers read during the two-day session were:

R. C. Klussendorf, Columbus: "Bovine Mastitis."

Walter Wisnicky, Fond du Lac: "Trichomoniasis in Dairy Cattle."

Herbert Lothe, Waukesha: "Bang's Disease from the Practitioner's Standpoint."

L. E. Willey, Allied Laboratories, Sioux City, Ia.: "Swine Diseases."

Theodore J. Jensen, Superintendent of the Fond du Lac city schools, guest speaker of the banquet spoke on "Geography as Superimposed by Air Travel."

s/JAMES S. HEALY, *Resident Secretary*.

**COMING MEETINGS**

District of Columbia Veterinary Medical Association. Mayflower Hotel, Washington, D. C., May 9, 1944. W. H. Mohler, 5508 Nebraska Ave., N.W., Washington 15, D. C., *secretary-treasurer*.

North Carolina State Veterinary Medical Association. Carolina Hotel, Raleigh, N. C., June 28-29, 1944. J. H. Brown, Tarboro, N. C., *secretary*.

Virginia State Veterinary Medical Association. Hotel Roanoke, Roanoke, Va., July 12-13-14, 1944. E. P. Johnson, Box 593, Blacksburg, Va., *secretary*.

American Veterinary Medical Association, eighty-first annual meeting. Palmer House, Chicago, Ill., Aug. 22-24, 1944. J. G. Hardenbergh, 600 S. Michigan Ave., Chicago 5, Ill., *executive secretary*.

United States Live Stock Sanitary Association. LaSalle Hotel, Chicago, Ill., Dec. 6-7-8, 1944. R. A. Hendershott, Trenton, N. J., *secretary-treasurer*.

**STATE BOARD EXAMINATIONS**

**North Carolina**—The North Carolina State Board of Veterinary Examiners will hold their next examination at the Carolina Hotel, Raleigh, N. Car., June 27, 1944. For further particulars, address: J. H. Brown, Tarboro, N. Car.

**MARRIAGES**

Dr. V. E. Rackley, (A.P.I., '42), S. Macon St., Fort Valley, Ga., to Miss Hulda Norine Pearson of Fort Valley, Ga., June 6, 1943.

Dr. Ralph A. Foster, (COLO., '42), 222½ Melrose, Modesto, Calif., to Miss Ruth Luddon, Nov. 14, 1943.

Dr. Merrill Goodman, (CORN., '43), Box 263, Livingston Manor, N. Y., to Miss Isabella D. Bonn of Brooklyn, N. Y., Jan. 23, 1944.

**BIRTHS**

To Capt. (O.S.U., '37) and Mrs. Everett H. Akins, Atlanta Ordnance Depot, Atlanta, Ga., a son, William Paul, Dec. 29, 1943.

To Dr. (O.S.U., '42) and Mrs. William O. Bolton, 327 S. Main St., Washington C. H., Ohio, a son, Rand, Jan. 9, 1944.

To Dr. (U.P., '30) and Mrs. Lester R. Barto, S. Finley Ave., Basking Ridge, N. J., a son, Lester Glenn, Jan. 27, 1944.

**DEATHS**

Elmer W. Babson (Harv., '97), Gloucester, Mass., died Jan. 21, 1944. He was a member and Secretary of the State Board of Registration in Veterinary Medicine since its formation in 1904. Dr. Babson had been a member of AVMA since 1906.

Joseph W. Burby (Amer., '91), San Antonio, Tex., died Dec. 24, 1943. Dr. Burby joined the AVMA in 1942.

Dr. F. H. Farmer, 80, of Wahpeton, N. Dak., died Jan. 17, 1944. He is a former president of the state veterinary association. He is survived by his wife, Mrs. Amanda Sawdon Farmer.

Phillip P. Forsberg (C.V.C., '14), Gary, Ind., died Dec. 31, 1943. He carried on a general practice in Hobart, Ind., for seventeen years. He moved to Gary, Ind., several years ago where he practiced until the time of his death. He was admitted to membership in AVMA in 1926. He is survived by his widow, Mary Denby Forsberg.

Wm. P. Jackson (San Fran., '11), Chico, Calif., died Dec. 5, 1943. He was a member of the AVMA since 1913.

Stephen Lockett (U.P., '06), 66 years old, Jamaica, British West Indies, died Dec. 27, 1943. After serving on the University of Pennsylvania staff from 1906 to 1910, he returned to Jamaica to assume the duties of veterinarian in the Department of Agriculture. In 1914 he accepted an appointment on the University of Nevada staff. He resigned from the University staff in 1923 and returned to Jamaica where he served as government veterinary surgeon of the colony until a year ago when he retired from active service. He was a member of AVMA from 1907 until he

died. He is survived by his widow, Mary S. Lockett.

**Wesley Massinger** (Corn., '94), Chalfont, Pa., died Dec. 20, 1943. Dr. Massinger conducted a general practice at Chalfont. He joined the AVMA in 1938.

**Roy F. South** (A.P.I., '15), Decatur, Ala., died Jan. 1, 1944. He was admitted to AVMA in 1940.

**Roy L. Stephenson** (Corn., '09), 57 years old, Malone, N. Y., died Dec. 21, 1943. He was born Jan. 9, 1886 in Ontario, Canada. He joined the AVMA in 1926.

**Dr. B. C. Taylor**, 90, pioneer veterinarian of Hillsboro, N. Dak., died Jan. 28, 1944. He was born in Nassagawaya, Canada, Apr. 14, 1853. He had lived in Hillsboro for the past sixty years.

**Addison L. Tow** (Ind., '18), 56 years old, Detroit, Mich., died July 11, 1943. He was a native of Indiana, born at Mitchell, Apr. 2, 1887. Joined the AVMA in 1924.

**Mrs. John L. Tyler**, 71, wife of Dr. John L. Tyler, Whittier, Calif., passed away at their home Dec. 31, 1943, after a brief respiratory illness which abruptly terminated a congenial espousal and happy home life of fifty-four years. Mrs. Tyler (née Beck) was born at Ornarga, Ill., July 6, 1872, and was married to Dr. Tyler on July 31, 1890. The Tylers moved to southern California in the 1890's, and, as seen in our perspective, they have participated actively in moulding the veterinary service of that state through their wholesome influence on professional life in a virgin field. A whole profession pays tribute to the memory of an honored friend, and duteous wife of a distinguished colleague.

Besides Dr. Tyler, living in retirement at Whittier, the deceased is survived by her daughter, Mrs. M. L. Chaney of Whittier and her brother, Amos E. Beck of Escondido, Calif.

**Charles I. Walch** (K.C.V.C., '07), 79 years old, St. Joseph, Mo., died Jan. 21, 1944. He was born Apr. 10, 1865 near Peoria, Ill. He was appointed Veterinary Inspector in the Bureau of Animal Industry, shortly after graduation and was assigned to the Chicago, Ill., Station. In 1909 he was transferred from Chicago to St. Joseph where he worked until he retired in 1931. Dr. Walch joined the AVMA in 1910.

**Emlen Wood** (U.P.-A.B., '10; V.M.D., '16), 53 years old, Philadelphia, Pa. General practitioner; captain, division veterinarian 28th Division, A.E.F., World War I; died Dec. 11,

1943 at Bryn Mawr Hospital. Captain Wood is of record as having made an excellent record for discipline, coöperation, and care of animals during the major battles on the Western Front in 1918; battle of the Marne, St. Mihiel, Argonne-Meuse with a division in almost continuous operation. In the records of the First Army, Captain Wood is rated as hard-working, resourceful, efficient, coöperative and his private and professional life were without blemish. He is survived by his widow and a daughter.

## David S. White

1870-1944

**David S. White** (O.S.U., '90), 74, Columbus, Ohio, past president of the AVMA, first dean of the College of Veterinary Medicine, Ohio State University, and veteran of the Veterinary Corps of World War I, died at his home, Jan. 7, 1944. Dean White, a native of New York, came to Ohio in the 1880's, and was one of the first graduates of the department of which he became dean in 1895, a position he held for thirty-six years. After graduating he took graduate work in Austria and Germany and returned to the teaching staff of his alma mater in 1893. When the department became a college of the university, he was made its dean.

The late dean also had a notable military record. During World War I, he was first commanding major of the Veterinary Corps in North America and later colonel and chief veterinarian of the A.E.F. in France. Dr. White was discharged in 1919, but in 1921, he became ranking colonel of the Veterinary Reserve, U. S. Army.

His war service won for him decorations from two governments, France making him an Officer in the Legion of Honor and Great Britain a Commander of St. Michael and St. George.

He was elected president of the AVMA at the Columbus meeting of 1920, and presided at the Denver meeting of '21.

Dr. White was a member of the Ohio Veterinary Medical Association, as well as honorary member in the Pennsylvania State Veterinary Medical Association and the Royal College of Veterinary Surgeons in England.

Dean White was a capable teacher of clinical veterinary medicine, an author of high merit, and a public speaker of the first rank. His long tenure as dean during the evolutionary period of veterinary education is indelibly engraved in American veterinary history.

# THE VETERINARY PROFESSION AND THE WAR

## Student Deferment Bulletin Amended

National Headquarters  
SELECTIVE SERVICE SYSTEM

Washington, D. C.

### Activity and Occupation Bulletin No. 33-6

Issued: 3/1/43. As amended: 1/6/44. Effective: 3/15/44.

SUBJECT: EDUCATIONAL SERVICES—  
STUDENT DEFERMENT

#### Part I. Policies That Apply to This Activity

In addition to general policies, the following policies and procedures apply to this activity:

##### A. GENERAL POLICY ON STUDENT DEFERMENT:

1. *Change in policy.*—The current needs in connection with the war effort require a change in the policy governing the occupational deferment of students. The Army and Navy Specialized Training Program is providing for the specialized training of a large number of men. This number will furnish a supply of persons in scientific and specialized fields and certain professions adequate for the needs of the armed forces. Therefore, students occupationally deferred should be limited to a number sufficient to meet civilian needs in war production and in support of the war effort.<sup>1</sup>

2. *Student quota.*—It is necessary that students in certain professional fields be considered for continued deferment. In certain scientific and specialized fields students who will graduate on or before July 1, 1944, should be considered for deferment until graduation. National quotas have been determined in accordance with which occupational deferment may be granted to undergraduate students in certain scientific and specialized fields, and undergraduate students in preprofessional courses of study. The quotas and the procedures by which they are controlled and certified to the local board are set forth in Sub-Part E hereof.

(Section B Omitted.)

<sup>1</sup>The provisions relating to high school students are set forth in section 5 (f) of the Selective Training and Service Act, as amended.

##### C. STUDENTS, MEDICAL, DENTAL, VETERINARY, OSTEOPATHIC, AND THEOLOGICAL:

1. *Students in professional schools.*—A registrant who is in training and preparation as a medical, dental, veterinary, or osteopathic student in a recognized medical school, dental school, school of veterinary medicine or school of osteopathy (a student preparing for the ministry in a theological or divinity school recognized as such a school prior to September 16, 1939, is exempt from training and service under the provisions of the Selective Training and Service Act of 1940), should be considered for occupational deferment during the period of such professional course, provided he is a full-time student in good standing, and if:

(a) He continues to maintain good standing in such course of study, and

(b) It is certified by the institution that he is competent and gives promise of the successful completion of such course of study and acquiring the necessary degree of training, qualification, or skill to become a recognized medical doctor, dentist, doctor of veterinary medicine, or osteopath.

2. *Undergraduate, preprofessional students.*—A student in premedical, pre-dental, pre-veterinary, preosteopathic, and pretheological fields should be considered for occupational deferment if he is a full-time student in good standing in a recognized college or university, and if it is certified:

(a) By the institution that he is pursuing a course of study in one of these preprofessional fields and if he continues his progress he will complete such preprofessional course of study within 24 months from the date of certification:

(b) By a recognized medical dental, veterinary, osteopathic, or theological school that he is accepted for admission and will be admitted to undertake professional studies upon completion of his preprofessional work; and

(c) By the National Roster of Scientific and Specialized Personnel of the War Manpower Commission that the certification of the insti-



tution as to his course of study and competence, and as to his prospective date of completing is correct to the best of its knowledge and belief, and that his deferment, if granted, will be within the quota for such preprofessional students.

3. *Internes.*—A registrant who has completed his professional training and preparation as a medical doctor, dentist, or osteopath and who is undertaking further studies in a hospital or institution giving a recognized internship should be considered for occupational deferment so long as he continues such internship but for a period not to exceed nine months.

#### D. OPPORTUNITY TO ENGAGE IN PROFESSION:

When a registrant has completed his training and preparation in a recognized college or university, or his internship, and has acquired a high degree of training, qualification, or skill, such registrant should then be given the opportunity to become engaged in the practice of his profession in war production or in support of the war effort. In many instances following graduation from a recognized college or university, or the completion of an internship, a certain period of time will be required in the placing of such persons in war production or in support of the war effort. When a registrant has been deferred as a necessary man in order to complete his training and preparation, it is only logical that his deferment should continue until he has had an opportunity to put his professional training and skill to use in the best interest of the Nation. Accordingly, following graduation in most of these professional fields or following an internship, a registrant should be considered for further occupational deferment for a period not to exceed 30 days, in order that he may have an opportunity to engage in his profession in war production or in support of the war effort. Persons graduating in medicine, dentistry, veterinary medicine, or osteopathy are required to pass a State examination before they will be licensed to practice their profession and, accordingly, to permit the completion of such examination registrants who are graduates in medicine, dentistry, veterinary medicine, and osteopathy should be considered for further occupational deferment for a period of not to exceed 60 days following their graduation. Consideration for further occupational deferment, as provided above, should be given following graduation or completion of internship, or in case of persons graduating in medicine, dentistry, veterinary medicine or osteopathy, after the taking of the State examination, only if during such period the registrant is making an honest and diligent effort to become engaged in his profession in war production or in support of the war effort.

#### E. DETERMINATION AND CERTIFICATION OF QUOTAS:

1. *Student quota, scientific and specialized fields.*—A national quota of 10,000 has been established for students who should be occupationally deferred at any one time by reason of pursuing courses of study in chemistry, engineering, geology, geophysics, and physics (the scientific and specialized fields listed in Sub-Part B, paragraph 2). Students deferred to graduate on or before July 1, 1944, as provided in Sub-Part B, paragraph 1, and students deferred for reasons other than pursuing a course of study will not be counted against this quota.

2. *Student quota, preprofessional fields.*—A national quota has been established for students who may be occupationally deferred at any one time by reason of pursuing courses of study in premedicine, predentistry, preveterinary medicine, preosteopathy, and prethelogy. This quota provides:

(a) That the total number of preprofessional students occupationally deferred at any one time does not exceed 50 per cent of the total average number of students in schools of medicine, dentistry, veterinary medicine, osteopathy, or theology, respectively, in the years 1938-1939 and 1939-1940, and

(b) The total number of students occupationally deferred at any one time who have been accepted for admission by such school does not exceed that part of the capacity of such school available for civilian students in the entering classes for which such students have been accepted.

3. *Function of the National Roster.*—The National Roster of Scientific and Specialized Personnel of the War Manpower Commission will certify to requests for occupational deferment of students under this bulletin as follows:

(a) Request for occupational deferment of a registrant who will graduate on or before July 1, 1944 (Part I, B, 1, of this bulletin) will be prepared by the institution in which the registrant is a student and will be forwarded to the National Roster. The National Roster will, if such is the case, certify that the statements of the institution as to the course of study and competence of the registrant and that if he continues his progress he will graduate from such course of study on or before July 1, 1944, are true to the best of its knowledge and belief; and

(b) Request for occupational deferment of a registrant in chemistry, engineering, geology, geophysics, or physics (Part I, B, 2, of this bulletin) or in premedicine, predentistry, preveterinary medicine, preosteopathy, or prethelogy (Part I, C, 2, of this bulletin) will be prepared by the institution in which the regis-

trant is a student and will be forwarded to the National Roster. The National Roster will, if such is the case, certify on the request that the statements of the institution as to the course of study and competence and prospective date of completion of the registrant are correct to the best of its knowledge and belief and that the registrant's deferment, if granted, will not exceed the quota established for such students.

If the National Roster cannot truthfully make such certification, it will not certify to the request. The National Roster will return the request for occupational deferment of students, whether certified to or not, to the institution which prepared the request.

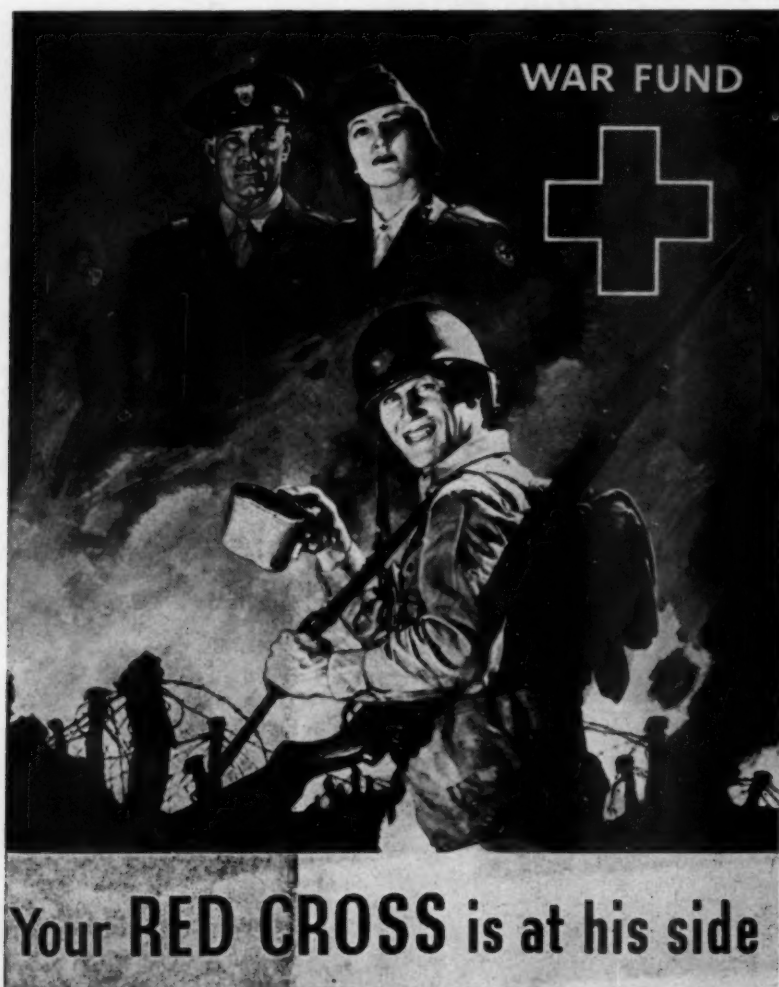
4. *Requests for student deferment.*—The institution in which the registrant is a student will file requests for the occupational deferment of such student with the local board as follows:

(a) For a student who has reached his eighteenth birthday but has not reached his twenty-second birthday, in duplicate on DSS Form 42 Special; and

(b) For a student who is 22 years of age or older, on DSS Form 42.

Part II. Essential Activities. Included in Part I hereof.

Part III. Essential Occupations. Included in Part I hereof.



## *Rabies Control*

The report of Harold N. Johnson, M. D., of the Rockefeller Foundation, Acting Director of the Rabies Laboratory of the Alabama Board of Health, read before the December, 1943, meeting of the United States Live Stock Sanitary Association, contained convincing evidence that the annual administration of rabies vaccine to all dogs in known rabies areas is a practical and successful means of controlling rabies.

Lockhart Rabies Vaccine is a potent, smooth, nonirritating suspension, easily administered through small needles. It is made for the discriminating veterinarian who wants his clientele to have the advantage of the best possible product.

Production facilities in our laboratories are adequate to ensure that supplies are available either direct or from reputable jobbers throughout the United States.

*Metal tag* and vaccination certificate are supplied with each dose of vaccine. Special certificates and metal tags bearing the veterinarian's name are furnished at nominal cost when veterinarians desiring them contract for an amount of vaccine corresponding to the number of special tags desired.

LOCKHART RABIES VACCINE IS SOLD ONLY TO GRADUATE VETERINARIANS, AND IS NOT SOLD AT A DISCOUNT TO ANY CITY, COUNTY OR STATE GOVERNMENTAL AGENCY.

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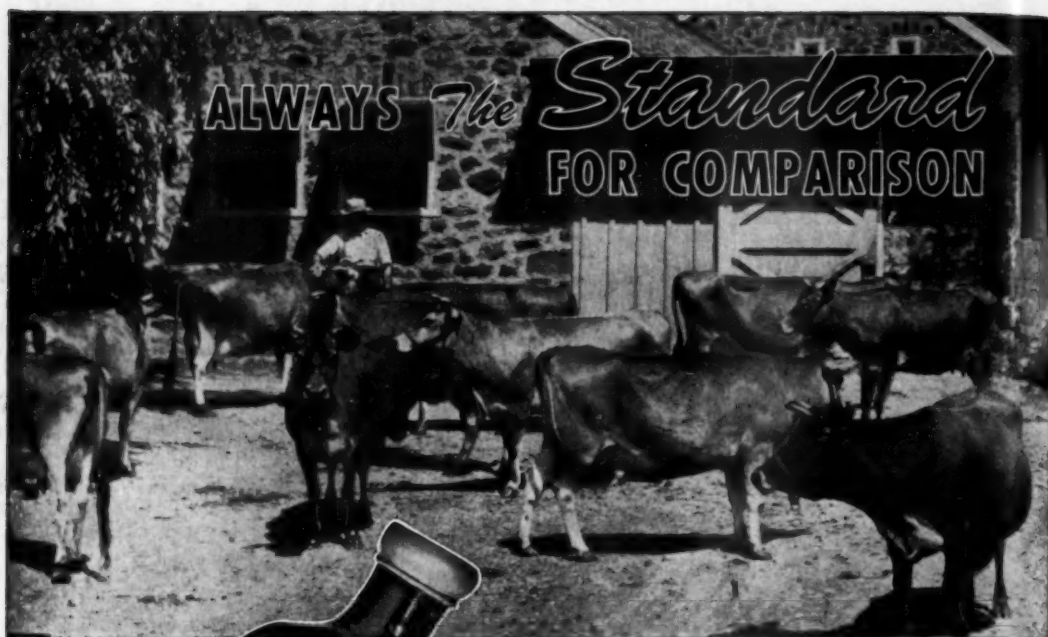
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Original, patented, distinctive D-C-M contains in each 500 cc. vial a full 18.5% of Calcium Borogluconate, 6.5% Magnesium Gluconate, and 18% Dextrose, with traces of Phosphorus.

When treating milk fever cases, it costs no more to specify D-C-M as insurance against concurrent ketosis and tetany...and, less relapses when using D-C-M.

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